

**Marine Life Protection Act Initiative  
Public Comments Received through  
January 17, 2010**

**Regarding the  
*Draft Regional Profile of the  
North Coast Study Region  
(Alder Creek to the California-Oregon Border)*  
*December 2, 2009 Draft***

From: Keith Bensen

To: "MLPAComments" <MLPAComments@resources.ca.gov>

Date: Tue, 15 Dec 2009 14:14:37 -0800

Subject: North Coast Regional Profile comment - re: lack of inclusion of state endangered and federal threatened marbled murrelet

I have one general comment which could pertain to a number of different sections in the profile but would be most appropriate for Chapter 3 - Status of Species and Chapter 4 - Ecological Linkages; the inclusion of marbled murrelets (*Brachyramphus marmoratus*) as a key marine species to be affected by any marine reserves designated in the north coast region. The marbled murrelet is listed under the California Endangered Species Act as endangered and is listed under the federal Endangered Species Act as threatened. The marbled murrelet is a small bodied seabird that forages exclusively within the nearshore environment (within 2km of shore) on small fish. The marbled murrelet is unique in that it nests exclusively in old growth conifer trees within 45 miles of the coast (almost entirely within 15 miles of the coast in California). The vast majority of the state listed population and a significant portion of the federally listed population nests immediately adjacent to, and subsequently forages and overwinters within, the north coast MHPA study region. Most of the nesting population is within Redwood National and State Parks with some murrelets nesting in other state parks or small old growth reserves directly east of the North Coast study region. In addition, most of the nesting population from Redwood National and State Parks forages directly off the coast of the parks. At sea surveys have indicated that the vast majority of marbled murrelets are found from Cape Mendocino north with the highest densities occurring north of Trinidad (i.e. directly off the coast of Redwood National and State Parks). Very few to no murrelets are found at sea in the southern half of the North Coast study region. Presumably this is due to the lack of inland nesting habitat south of Cape Mendocino. Murrelets do not fly far from their inland nesting grounds to forage at sea. In terms of ecological linkages, beyond anadromous fish species, only marbled murrelets live both in the marine environment of the study region and within the immediately adjacent inland environment. There is no more archetypal marine/inland ecologically linked species in the study region than marbled murrelets. It is not an understatement to say that the single most impacted threatened or endangered marine species that will be affected by designated marine reserves within the northern half of the north coast study region is the marbled murrelet. Presumably, marbled murrelets will benefit from marine reserves through an increase in prey; however, complex marine ecological relationships may mean that murrelet prey actually decreases within reserves. Regardless, none of the other threatened or endangered species listed in the NC Profile will be as affected at the listed population level as marbled murrelets. All other listed

species (whales, pinnipeds, fish, abalone and snowy plovers) are either transitory through the study region or only a small portion of the listed population resides within the study region for a significant portion of their life cycle. Any marine reserves established in the study region, particularly within the northern half, would encapsulate a significant portion of the vital habitat of this endangered species due to their nearshore and localized foraging habits. As an FYI, the US Forest Service Forest and Range Experiment Station - Redwood Sciences Laboratory and/or the Arcata US Fish and Wildlife Office have spatial data on the locations of at sea marbled murrelets found during population monitoring surveys conducted for more than a decade. Also, Dr. Richard Golightly of Humboldt State University has spatial data on marbled murrelet at sea habitat use that was acquired during a three year radio telemetry study. They may share some of their data for public consideration. I recommend that you include a description and discussion of the marbled murrelet in the final version of the MLPA North Coast Regional Profile for the reasons described above. Please feel free to contact me if you have questions, comments or need additional information. \*\*\*\*\* Keith Bensen Fish and Wildlife Biologist Redwood National and State Parks

From: "Brandi Easter"

To: "MLPAComments"

Date: Thu, 17 Dec 2009 13:41:32 -0800

Subject: NC Profile comment

Hi Again, I was wondering why tribal uses/areas are not listed in either the Coastal Management & Human Uses and Habitat & Species legends of the North Coast map profile. Thank you, Brandi

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From: "Brandi Easter"

To: "MLPAComments"

Date: Thu, 17 Dec 2009 10:23:44 -0800

Subject: NC Profile comment

Hi, I am still reviewing the North Coast Region profile you have put up on the DFG site - THANK YOU!. One thing I have initially noticed is that there is the absence of ship wrecks noted for the Crescent City area - Queen Christina (along coast north of in about 20'

[http://www.nps.gov/history/history/online\\_books/redw/history12c.htm](http://www.nps.gov/history/history/online_books/redw/history12c.htm)) and the SS Emidio (just outside harbor mouth in about 55'

[http://www.parks.ca.gov/listed\\_resources/default.asp?num=497](http://www.parks.ca.gov/listed_resources/default.asp?num=497)). Thank you, Brandi

**Subject:** Regional Profile map updates  
**Date:** Wed, 23 Dec 2009 13:42:30 -0800  
**From:** Rose Bond

**CC:** 'Anna West', 'Talbot, Alison', 'Caliendo, Ian', 'Toman, William'

Hello Emily,

Hope that you are doing well and that you are enjoying the holiday season.

To refresh your memory we recently met, at the last MLPA Science Advisory Team meeting, here in Northern California (Eureka). I'm a contractor with PG&E. As you may recall we spoke about updating information on the North Coast Regional Profile map regarding the WaveConnect project.

Attached is information on both the current Greenwave Mendocino Wave Park FERC preliminary permit (which is still active) and the now defunct PG&E Mendocino WaveConnect project (PG&E surrendered this preliminary permit because of the evaluated unsuitability of Noyo Harbor, but is pursuing the Humboldt WaveConnect site and another wave energy site off of the central coast of California). There is also a Greenwave San Luis Obispo Wave Park project which also has an active FERC preliminary permit.

You may want to update your maps for MLPA reflecting only the Greenwave Mendocino site (yellow outline) for the Fort Bragg area (PG&E's blue outline is no longer active). The coordinates for the boundary points of the Greenwave Mendocino project's FERC study area can be found at the FERC website in Greenwave's application for its preliminary permit:

<http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=11489784>

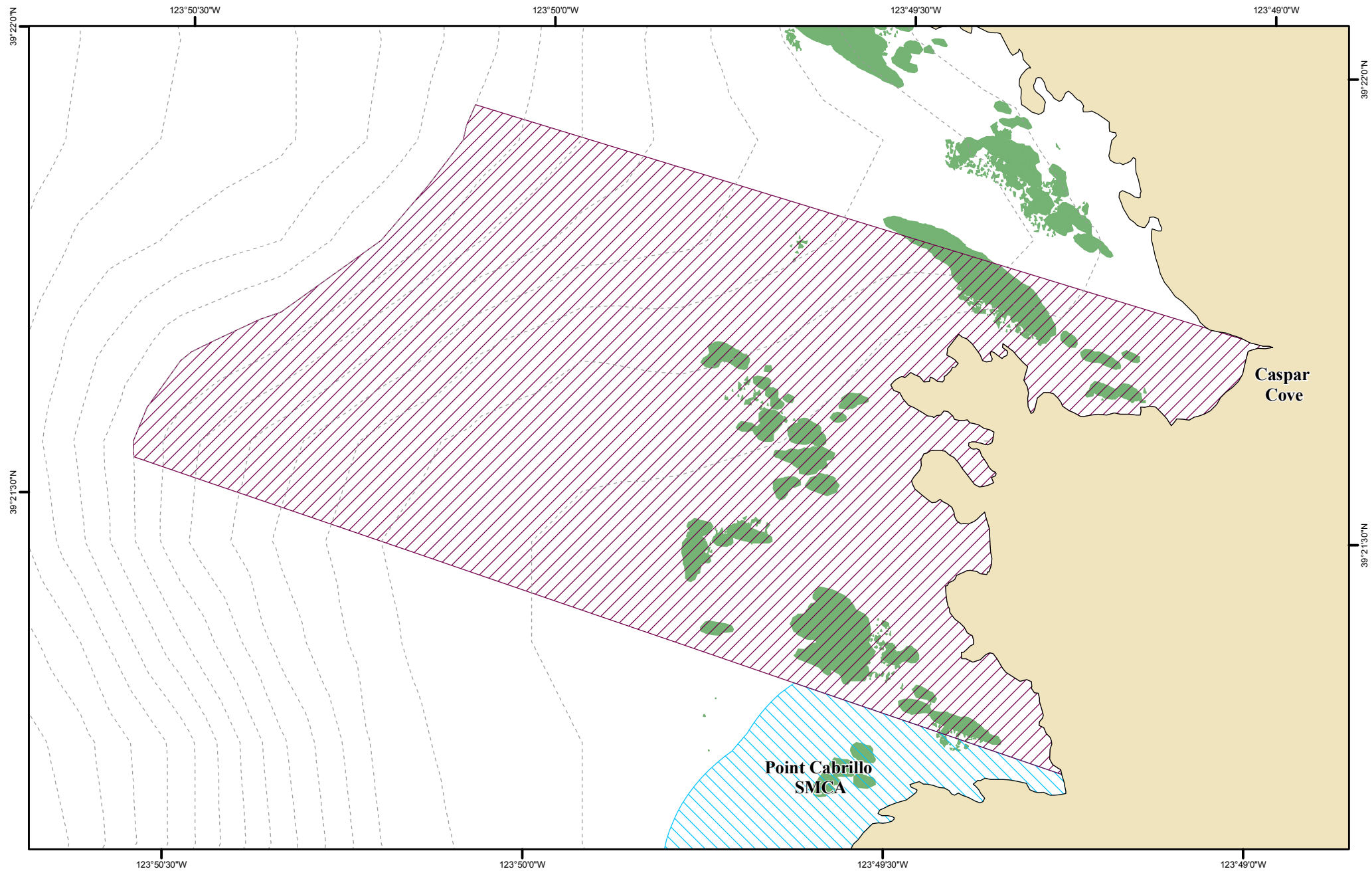
I hope this information will assist in keeping the Regional Profile map accurate and provide clarification for all. If you have any questions or comments, please do not hesitate to ask. Please feel free to contact William Toman, Senior Program Manager, PG&E. And at a minimum please let me know that you received this e-mail message.


Thanks so much for your efforts.

Rose  
Contractor with PG&E


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# Caspar Cove Sea Urchin Closure



 Bathymetric contours (5 meter interval)

 Maximum Kelp Canopy Area

 State Marine Conservation Areas

 Caspar Sea Urchin Closure Area



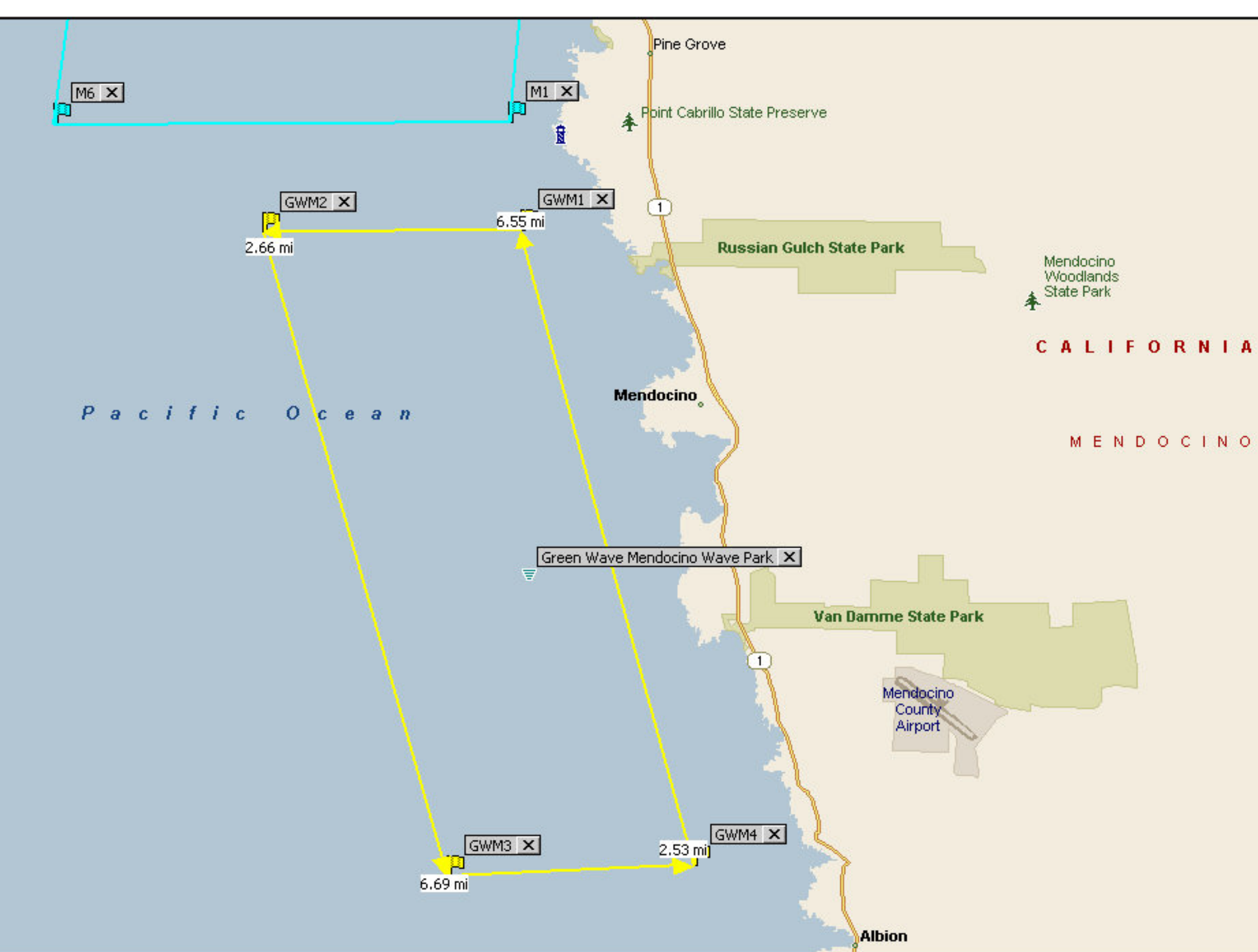
1:10,000

0 0.1 0.2

Nautical Miles







From: "mark taylor"

To: "MLPAComments" <

Date: Sat, 26 Dec 2009 15:47:10 -0800

Subject: North Coast Draft Regional profile

There are several areas of the profile that I think are misleading or incomplete.

In Section 5.1-3 (page 67, page 83 of the pdf), Mendocino County's graph doesn't include Living Resources in its sector profile. This is a pretty major oversight, given the dollar value of the commercial fishing there, and as evidenced by other sections of the profile where commercial fishing is addressed.

In Section 5.5 (page 82, page 98 of the pdf), Recreational Fishing is addressed and catch figures are presented. In the commercial fishing sections, a dollar value is attached to the catch figures. In that fish caught recreationally are not just discarded, but are in fact consumed as meals, that catch has as much dollar value as a commercially caught fish, and in that much of that catch is consumed locally, that dollar value has a high local socio-economic impact. While the socio-economic impact of recreational fishing on business has been dollar-quantified (inadequately, I believe), has the actual dollar value of the catch to the people who do the catching been considered?

In Section 5.7, under the heading of Non Consumptive Uses (page 90, page 106 on the pdf), there is much data taken from a general California data base. We are assured that a more detailed profile of Northern California will be made available later. But as it is presented here, it gives a incorrect impression of North Coast activities. There is reference to the use of campgrounds and state parks and beaches for non consumptive activities. The accompanying charts lists a whole range of non consumptive activities for Beach goers, as if this is all they do. There is also a chart listing revenues generated at various coastal state parks.

This is a selective reading of the reality. The implication is that these revenues are all generated by non consumptive users. But during abalone and recreational fishing seasons, a large portion of the coastal campground and state park users in the North Coast Region are, in fact, consumptive users - as should be readily evidenced by abalone catch location data (section 5.5-3, page 83, page 100 of the pdf) and state parks own use data. While it is true that the fishermen enjoy all the facets of the ocean experience that non consumptive users do, it would be a mistake to underestimate or overlook the impact of consumptive use on visitor numbers and enjoyment value.

In Section 5.7.2, Boating (page 96, page 111 of the pdf), a very misleading picture is painted. In its lead up to providing figures, the profile notes (emphasis mine):

"Non-consumptive boat data is also collected as supplemental data from the DFG's CRFS program. The purpose of the CRFS is to estimate total marine recreational finfish catch and effort in California. CRFS staff conduct interviews of anglers returning to public launch ramps. Under the Primary Private Boat Survey, boaters are interviewed at primary launch ramps approximately eight days per month (Van Buskirk pers. comm. 2007). "Primary" launch ramps are defined as "those where the majority of the managed species, in any particular month, are landed" (PSMFC 2007). Supplemental data collected include the number of private and rental boats that are not recreationally fishing for finfish. **Note that, the goal of the CRFS is to produce marine recreational fishery-based data to inform management of recreational fisheries and, therefore, may underestimate the number of nonconsumptive boat users because it focuses on public launch ramps where the majority of managed species are landed rather than a random sampling of public launch ramps.**"

In Mendocino County, at least, there **are** no public boat launches other than the types where the figures have been obtained. There are perhaps 6 public launches in Coastal Mendocino County (including Pt. Arena), all of which are almost exclusively fishing related. (A minor point, in section 5.7-10 (page 97, page 113 of the pdf), Public Boat Launch or Hoist Locations, MacKerricher Park is listed. I don't know of any boat launch facilities there and this may be listed in error.)

The data isn't skewed because of who and where it was collected. And yet in the interpretation of the raw data, a heavily slanted reading is presented. It states that 25% of Mendocino County boating was "not fishing". This does not mean they were non consumptive uses. An examination of the data presented indicates that the non-fishing category includes Enforcement (who are public agency owned boats, not private) .49%, Maintenance - 2.93%, Removing boat from slip, no fishing - 11.14%, and Unidentified -5.57%. How can any of these be considered non consumptive uses for the purposes of a regional profile of private boats? I understand that there are limitations to the data available, but the profile should be realistic in its appraisal of that data. In our county of Mendocino, there **are** non consumptive uses, and the 4.69 % for Recreational Cruising probably covers it. But Coastal Mendocino County boating is almost exclusively fishing related, and the interpretation of the data should reflect that. Similar adjustments should be made for Del Norte and Humboldt Counties.

Coastal Mendocino County isn't an area conducive to the types of pleasure

cruising that occurs in Southern California. The establishment of MPAs can have a large effect on fisheries related boating, though I don't believe they will bring a corresponding increase to "non consumptive" boating. It's important to have accurate interpretation of data at the outset to aid in any evaluation of the effect of MPAs.

Mark Taylor  
Fort Bragg, CA

From: **Reweti Wiki**

Date: Mon, Dec 28, 2009 at 10:57 AM

Subject: RE: MLPA Initiative: Draft North Coast Regional Profile

To: Darci Connor

Comments from Elk Valley Rancheria:

Page 68 **5.2 Native American Coastal Communities**: “Other tribal groups such as Hoopa and Karuk have coastal interests but not a direct land link to the coast” – I am conscious that perhaps Hoopa and Karuk may misinterpret this and possibly be offended. If agreeable, this may read better as “However, coastal resources are shared by many Tribes further inland and north and south of the study area”. This is also consistent with the views outlined in Section 7.1.4

Page 122 under Del Norte County: “Elk Valley Rancheria” should read “Elk Valley Rancheria, California” (we make the distinction between us and another Elk Valley in Nevada).

Thanks for all the hard work!

Wok-hlaw / Hum-chee

Reweti Wiki | Tribal Administrator  
Elk Valley Rancheria

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**From:** dave vera  
**Sent:** Thursday, December 31, 2009 10:35 AM  
**To:** MLPAComments  
**Subject:** errors in repor  
How do we report errors in this report?

The Mendocino headlands is one of the most popular diving spots, if not the most popular diving spot in Mendocino county. This was left out of the report. Abalone divers are a large part of the tourist income to the town of Mendocino.

There are no populations of black abalone in Mendocino county, All the divers in the area have been looking for a black abalone for years and no one has found one. I would like to have anyone point out a population of black abalone.

There are populations of the European Green Crab, which is an invasive species in Albion, Big River and Noyo Estuaries. This is not addressed and needs to be as this is a highly aggressive crab that eats the Dugeness crab young and is controlled by the sport fishermen who kill the green crabs when they get them in their net or traps. Divers also kill the green crabs and several of us get together and do dives just to keep their populations under control.

Thank you,

David Gaon

From: "Kirk Younker"

To: "MLPAComments"

Date: Thu, 31 Dec 2009 07:38:35 -0800

Subject: RE: North Coast Regional profile

I didn't identify myself: My name is Kirk Younker, I work for Pacific Choice Seafood here out of Eureka Ca and have been attending many of the local MPA meetings.

**From:** Kirk Younker ☐ **Sent:** Thursday, December 31, 2009 7:36 AM ☐ **To:** ['MLPAComments@resources.ca.gov'](mailto:MLPAComments@resources.ca.gov) ☐ **Subject:** North Coast Regional profile

The fisherman and processors here on the North Coast are in the middle of the Dungeness crab season. None of use will have the time right now to go through all 185 pages of this document and give this group any meaningful feedback within two weeks. This whole privately funded steamroll process needs to be put on a side track for now before we all get ran over with more regulations and closures that directly effect our lively hoods.

From: "Gregg Young"

To: "MLPAComments"

Date: Tue, 5 Jan 2010 12:27:49 -0800

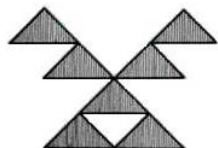
Subject: Potter Valley Tribe comments on MLPA - North Coast draft

Attached are comments from the Potter Valley Tribe on the MLPA - North Coast Regional Profile draft.

Regards,

Gregg Young, M.A.  
POTTER VALLEY TRIBE





POTTER VALLEY TRIBE  
ENVIRONMENTAL OFFICE  
2251 S. STATE STREET  
UKIAH, CA 95482

**MEMO TO:** MLPAComments@resources.ca.gov  
California Marine Life Protection Act Initiative –  
**REGARDING:** Draft Regional Profile of the North Coast Study Region  
**DATE:** January 5, 2010

This is a very well-developed draft profile of the coastal marine resources in the area. Attached are my comments; (suggested additions in parentheses):

**Executive Summary** Pg xi, Par 5: add (inland and coast Pomo) to the list of Native Americans utilizing the area.

**Chapter 2** Pg 3, Par 3: "...highly productive ecosystem fueled by upwelling (and deliveries of terrestrial nutrients by rivers (i.e. calcium)..."

**Chapter 3** Pg 19, Par 2 (Noyo River estuary supports Dungeness crab)  
  
Pg 31, Par 4 add (the impact of large-scale commercial fishing outside the US territorial waters is unknown and may be significant)  
  
Pg 39, Par 1 Western Snowy Plover nests in the Manchester Dunes in Mendocino County, at the southern border of the North Coast Study Region

Gregg Young, M.A.  
Environmental Director

From: Jerry Kashiwada

Sent: Tuesday, January 05, 2010 2:11 PM

To: MLPAComments

Subject: Fish and Game Abalone Monitoring Sites and Sea Urchin Closure

Here are some features which should be added to the MLPA use maps.

The Abalone Recovery and Management Plan established monitoring sites for abalone at Todds Point (Noyo Bay including areas of the former GP Mill site to the north of the Bay), Caspar Cove (north and south of the Cove) and Van Damme (north and south of the main beach entry). Maps of recent transect locations are attached to show the general extent of the study areas but new transect locations are randomly selected each time the site is surveyed. Data are also collected for sea urchins and associated species (especially potential predators). The sites are scheduled to be surveyed by divers every three years.

There is also a Commercial Sea Urchin Closure area which includes the south half of Caspar Cove and extends south to the Point Cabrillo SMCA.

Thanks,

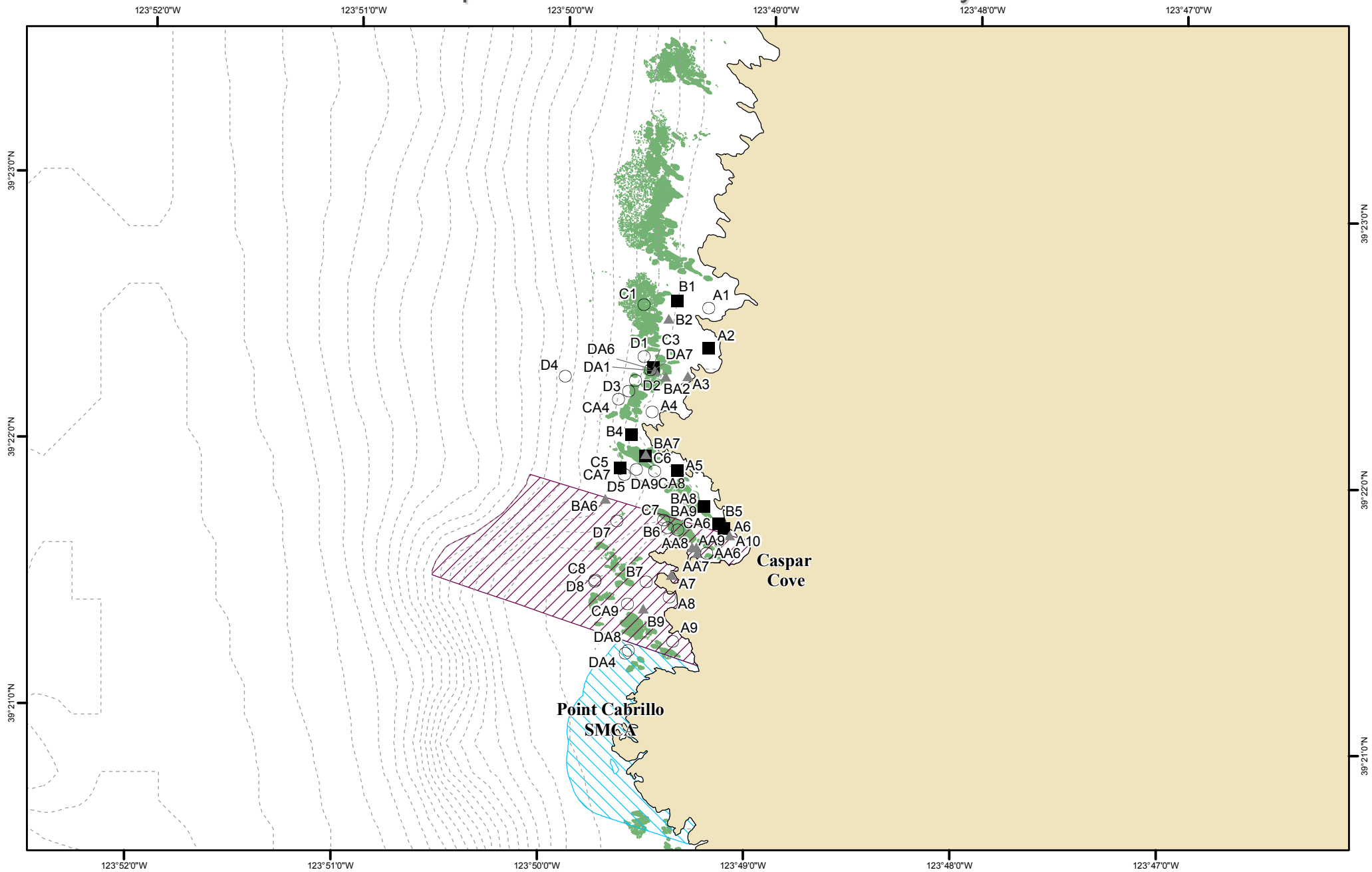
Jerry

Jerry Kashiwada

Associate Marine Biologist

California Dept. Fish and Game

# Caspar 2008 Abalone Surveys



## Density Ranges (Abalone/m<sup>2</sup>)

- 0 to 0.2000
- ▲ 0.2001 to 0.6600
- >0.6600

— Bathymetric contours (5 meter interval)

■ Maximum Kelp Canopy Area

▨ State Marine Conservation Areas

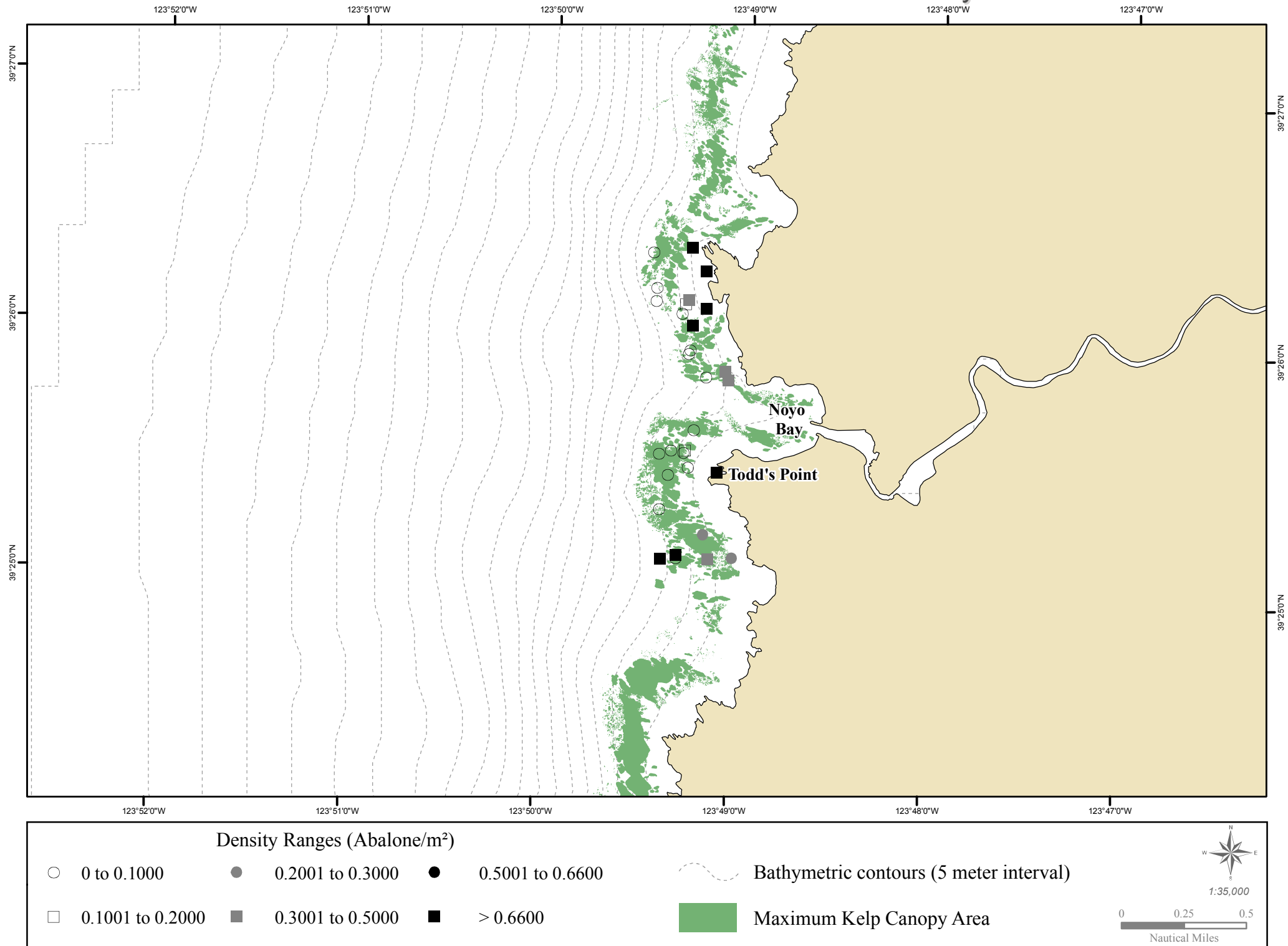
▨ Caspar Sea Urchin Closure Area



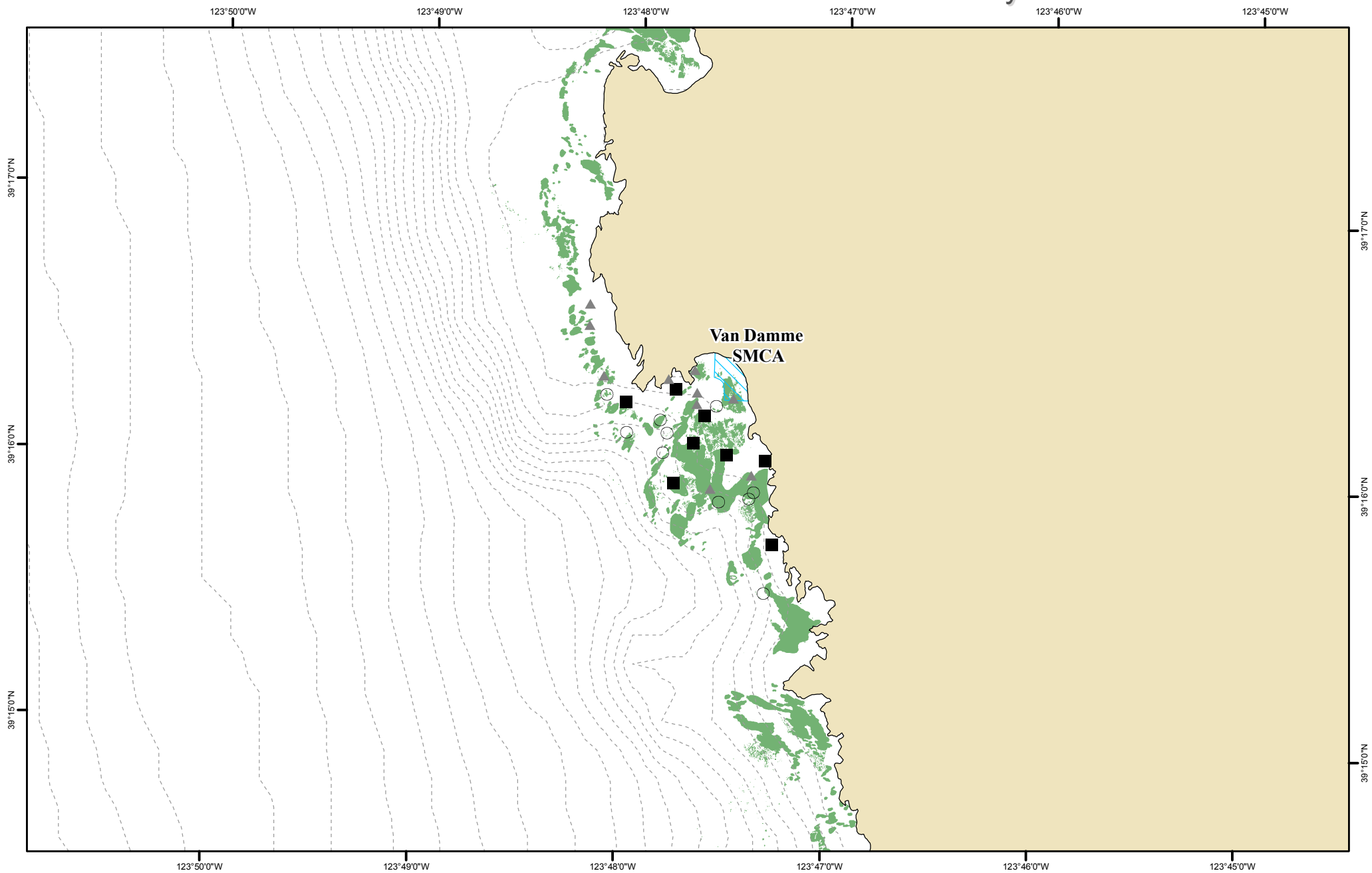
1:35,000

0 0.25 0.5  
Nautical Miles

# Todd's Point 2006 Abalone Surveys



# Van Damme 2007 Abalone Survey



## Density Ranges (Abalone/m<sup>2</sup>)

- 0 to 0.2000
- ▲ 0.2001 to 0.6600
- > 0.6600

— Bathymetric contours (5 meter interval)

■ Maximum Kelp Canopy Area



State Marine Conservation Areas



1:35,000

0 0.25 0.5  
Nautical Miles

From: Judith Vidaver

To: "MLPAComments" <MLPAComments@resources.ca.gov>

Date: Mon, 11 Jan 2010 17:24:34 -0800

Subject: comments re north coast profile

Ocean Protection Coalition □ PO Box 1006 □ Fort Bragg, CA 95437 □ □

January 11, 2010 □ California Marine Life

Protection Act Initiative □ c/o CA Natural Resources Agency □ 1416 Ninth St.,

Suite 1311 □ Sacramento, CA 95814 □ [MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov) □ □ RE

Draft Regional Profile of the North Coast Study Region □ □ Ocean Protection

Coalition (OPC) is a 501(c)3 organization under the □ umbrella of Redwood

Coast Watershed Association. We are composed □ primarily of local citizen

activists with strong out of the area support. □ Our mission is to protect the ocean

and all life therein. OPC was founded □ in 1987, during the oil "war" when our little

community took on the oil □ companies and the Federal government and in a

overwhelming out-pouring of □ opposition, sent them away with the message, "not

here, not now, not □ ever." □ Because of OPC's efforts, our community has had a

strong voice in recent □ Federal marine planning proposals, such as the OCS 5

year oil/gas lease □ plan, the Renewable Energy and Alternate Use Plan and the

Obama Ocean Task □ Force proposal. □ Most recently, OPC has been responding

to potential threats to the ocean □ from proposals to install huge waver power

plants off the Mendocino Coast. □ We have educated the local community and

policy makers of the serious harm □ these giant machines could have on the

marine environment. Of three □ potential projects only one remains,

GreenWave. □ OPC's comments on the Draft Regional Profile (DRP) address

hydrokinetic □ energy development as discussed in Chapter 4.4 "Coastal Energy

Projects". □ Currently, as noted in the DRP, the Federal Energy Regulatory

Commission □ (FERC) has issued two preliminary permits for hydrokinetic

projects □ within the study region. Off Mendocino County, GreenWave LLC has

claimed □ 17 square miles of ocean from just above Navarro to Point Cabrillo

This □ permit area extends from ¼ of a mile from shore to 6 miles offshore..

In □ Humboldt County, PG&E has an exclusive preliminary permit for 128

square □ miles of ocean outside Humboldt Bay. □ Some of the potential impacts

anticipated with wave power generation □ plants include: disruption of whale

migration, entanglement of whales and □ other marine mammals, disturbance of

sediment transport, reduction of wave □ action, noise pollution, toxic

contamination of marine waters, □ electromagnetic field generation, leakage of

electricity, benthic habitat □ degradation during construction and cable

laying. □ Potential impacts to humans include aesthetic impacts from the

machines □ themselves. They will be very noisy. Most will be highly visible from

the □ shore and from the water. So far most are huge and rise above the

water. □ They will need to be made highly visible by being painted bright

colors □ and being lit up at night to prevent collisions with marine

traffic. □ Exclusion zones would extend for some distance beyond the

hydrokinetic array. It has been estimated that a plant generating 60 MW would require 5 square miles of ocean—this combined with MPAs excluding fishers could have a devastating impact on our fishing and local economy. And there is always the potential for these machines weighing up to 750 tons, to break loose in our heavy seas or in an earthquake. If one did break loose and wash aground, it could devastate the intertidal habitat. If it sank it could roll around on the bottom destroying benthic structures. Give these potential impacts, it makes sense to site MPAs as far from these projects as possible. We note with some alarm that MPAs were sited quite close to areas with existing preliminary permits from FERC for wave generation plants. For all of the above reasons, we hope that will not happen in our region. Thank you for your consideration,

Judith Vidaver, Chair, Ocean Protection Coalition

Ocean Protection Coalition

PO Box 1006

Fort Bragg, CA 95437

January 11, 2010

California Marine Life Protection Act Initiative

c/o CA Natural Resources Agency

1416 Ninth St., Suite 1311

Sacramento, CA 95814

[MLPAcomments@resources.ca.gov](mailto:MLPAcomments@resources.ca.gov)

## **RE Draft Regional Profile of the North Coast Study Region**

Ocean Protection Coalition (OPC) is a 501(c)3 organization under the umbrella of Redwood Coast Watershed Association. We are composed primarily of local citizen activists with strong out of the area support. Our mission is to protect the ocean and all life therein. OPC was founded in 1987, during the oil "war" when our little community took on the oil companies and the Federal government and in a overwhelming out-pouring of opposition, sent them away with the message, "not here, not now, not ever."

Because of OPC's efforts, our community has had a strong voice in recent Federal marine planning proposals, such as the OCS 5 year oil/gas lease plan, the Renewable Energy and Alternate Use Plan and the Obama Ocean Task Force proposal.

Most recently, OPC has been responding to potential threats to the ocean from proposals to install huge waver power plants off the Mendocino Coast. We have educated the local community and policy makers of the serious harm these giant machines could have on the marine environment. Of three potential projects only one remains, GreenWave.

OPC's comments on the Draft Regional Profile (DRP) address hydrokinetic energy development as discussed in Chapter 4.4 "Coastal Energy Projects".

Currently, as noted in the DRP, the Federal Energy Regulatory Commission (FERC) has issued two preliminary permits for hydrokinetic projects within the study region. Off Mendocino County, GreenWave LLC has claimed 17 square miles of



ocean from just above Navarro to Point Cabrillo This permit area extends from ¼ of a mile from shore to 6 miles offshore.. In Humboldt County, PG&E has an exclusive preliminary permit for 128 square miles of ocean outside Humboldt Bay.

Some of the potential impacts anticipated with wave power generation plants include: disruption of whale migration, entanglement of whales and other marine mammals, disturbance of sediment transport, reduction of wave action, noise pollution, toxic contamination of marine waters, electromagnetic field generation, leakage of electricity, benthic habitat degradation during construction and cable laying.

Potential impacts to humans include aesthetic impacts from the machines themselves. They will be very noisy. Most will be highly visible from the shore and from the water. So far most are huge and rise above the water. They will need to be made highly visible by being painted bright colors and being lit up at night to prevent collisions with marine traffic. Exclusion zones would extend for some distance beyond the hydrokinetic array. It has been estimated that a plant generating 60 MW would require 5 square miles of ocean—this combined with MPAs excluding fishers could have a devastating impact on our fishing and local economy.

And there is always the potential for these machines weighing up to 750 tons, to break loose in our heavy seas or in an earthquake. If one did break loose and wash aground, it could devastate the intertidal habitat. If it sank it could roll around on the bottom destroying benthic structures

Give these potential impacts, it makes sense to site MPAs as far from these projects as possible.

We note with some alarm that MPAs were sited quite close to areas with existing preliminary permits from FERC for wave generation plants. For all of the above reasons, we hope that will not happen in our region.

Thank you for your consideration,

Judith Vidaver, Chair, Ocean Protection Coalition

From: "Sue Sack"

To: "MLPAComments"

Date: Mon, 11 Jan 2010 10:11:02 -0800

Subject: Comment regarding Human Uses map of Lost Coast

Hi:

The human use map of the Lost Coast does not have any depth references and does not include the huge area (RCA) already off-limits to hook and line commercial and recreational ground fish fishing. These areas are well over 50% of State waters on the Lost Coast. Could these areas be mapped and depth contours be layered directly on the data map?

Why is the canyon mapped as essential fish habitat? It is already closed to hook and line fishing for ground fish due to depth limitations on these fisheries. Is this designation due to State waters not having many examples of this type of habitat or is it that this habitat is in danger of being impacted in some way by hook and line fisheries? If the canyon becomes an MPA will the edges of the canyon also be included? Crabbers and other fishers will be highly impacted should closures be placed around the canyon edges.

Thanks,  
Sue Sack,  
Administrative Secretary

**From:** Ben Doane

**Sent:** Wednesday, January 13, 2010 11:35 AM

**To:** MLPAComments

**Subject:** Response to North Coast Region Draft Regional Profile

Attached is a MS Word doc that contains my response to a portion of the above captioned document. The text below represents that doc.

Henry B. "Ben" Doane

JANUARY 13, 2010

RESPONSE TO:

CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE  
DRAFT REGIONAL PROFILE OF THE  
NORTH COAST STUDY REGION

After reviewing the above captioned document, I believe that the majority of the issues and subjects are appropriately addressed. In many instances the issues and subjects are addressed with a "broad brush" methodology and lack detail in some instances.

One subject in particular exhibits to lack of sufficient real time research is Chapter 5, "Socioeconomic Setting". Section 5.1.2 Humboldt County relies on severely dated data. Much of the data in Table 5.1-2 relies upon statistics generated in the years 1999 and 2000. These items are: unemployment rate (2000), per capita income (1999), median household income (1999) and percent below poverty (1999).

There is current socioeconomic data (June 2009) readily available for the subjects enumerated above in a study presented by Professor Erick Eschker of Humboldt State University in August of

2009:

The Humboldt County Economy in 2009 □ By Erick  
Eschker □ HSU Department of  
Economics □ [www.humboldt.edu/~indexhum](http://www.humboldt.edu/~indexhum)  
August 30, 2009

Given the nation wide downturn in the economy which manifest itself in 2008 / 2009, relying on data date 1999 and 2000 provides a much less than accurate picture of Humboldt County's current economic state.

The data used for both Del Norte and Mendocino counties is equally out of date. While I am not currently able to provide specific references to more current data for those counties, I am confident that there is more recent and accurate data available.

**From:** Ben Henthorne  
**Sent:** Wednesday, January 13, 2010 1:36 PM  
**To:** MLPAComments  
**Subject:** Comments to Regional Profile Draft

Thank you.

**Benjamin R Henthorne III**  
**EPA Program Coordinator**  
**Hopland Band of Pomo Indians**



# Hoplend Band of Pomo Indians

3000 Shanel Rd., Hopland, California 95449 Phone (707) 744-1647 Fax (707) 744-1506

January 12, 2010

MLPA Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

Re: Comments to the North Coast Regional Profile

This is the official response by the Hopland Band of Pomo Indians in regards to the North Coast Regional Profile Draft. I have also consulted with other Mendocino County Tribes over their own comments as well as certain information used by the Hopland Band of Pomo Indians with regards to all tribes within the county.

Please feel free to contact me with any questions that your agency might have. Benjamin R Henthorne III (707) 744-1647 Ext 1306. Or email [bhenthorne@hoplandtribe.com](mailto:bhenthorne@hoplandtribe.com)

Roman W. Carrillo, Jr.  
Tribal Chair

Shawn Pady  
Vice Chair

Patrick Zaste Jr.  
Treasurer

Pam Espinoza  
Secretary

James "Red" Crandell  
Council Member

Richard Billy III  
Council Member

Suzanne Romero  
Council Member

Comments for the North Coast Regional Profile:

**Edits to individual sections:**

- 5.2.
- 5.2.1.

**Editorial suggestions to improve accuracy, clarity, or internal consistency:**

- 5.2 Must be changed to represent The Cahto Tribe of Laytonville, and Sherwood Valley Tribe of Willits that have Tribal members living on the Fort Bragg Coast line. Also there are well documented Archeological finds up and down the Mendocino County Coast line that will be linked to the Cahto Tribe of Laytonville. Please refer the California Department of Forestry or Cal Fire or Tribal Environmental Departments of the Cahto Tribe.
- 5.2.1-Include All Tribal residents of Mendocino County. Hopland Band of Pomo Indians, Cahto Tribe of Laytonville, Round Valley Indian Tribes, Guidiville Rancheria of California, Manchester-Point Arena Pomo Indians, Redwood Valley Rancheria, Sherwood Valley Band of Pomo Indians, Coyote Valley Tribe.
- Mention all tribes that are listed in the North Coast regions group. Humboldt and Del Norte counties.
- 5.2.1-Cahto Tribe of Laytonville still has traditional ceremonies on the Mendocino county coast line bluffs and beaches. The Cahto Tribe still has an agreement with the Department of Fish and game regarding fishing fees and an agreement with The California State parks regarding camping fees. This includes all Tribal members that have proof of enrollment in a California Federal recognized tribe.
- 5.1-4 Population for the 9 federally recognized tribes in Mendocino County = 7,001. Also estimates for the 1 non-recognized tribe stands at 183 members. **(These numbers are current; Henthorne)**
- All tribes still migrate to the Mendocino coast starting in March and lasting until August

**My own first hand knowledge:**

Before I was born the Cahto Tribe which is my Father's Tribe seasonally lived along the Mendocino Coast. The longest period of camping I experienced was an 83 day camp out. This was in 1983 at Howard Beach along the coast line located in Mendocino County. I personally lived along the ocean with my Grandmother who is now 89 years old for those 83 days and we never had a problem any state agency because there were no state agency's to regulate the Cahto Tribes members that inhabited the Mendocino Coast. I personally experience the extremely large runs of Surfsh back in the 1980's. We gathered Seaweed for personal use and were never regulated for the amounts of seaweed we harvested. Abalone was also very abundant and a common food for the Cahto Tribal members.

A food not mention in the Regional Profile was the abundant supply of trout in the creeks along the Mendocino Coast. Natives from different tribes lived on those trout supplies. "I personally know that my family did". Today it's very hard to locate a good trout hole along our coast line. Rock fishing for Sea Bass, Perch, and Lingcod was also an activity that all tribes practiced.



# Hoplend Band of Pomo Indians

3000 Shanel Rd., Hopland, California 95449 Phone (707) 744-1647 Fax (707) 744-1506

Gathering muscles, crab and clams is another food Mendocino county Tribal members used as a food source.

A traditional walk from the existing Laytonville Reservation to the Mendocino County Coast takes place every year. This is called the Cahto Coast Walk. This is a trip that tells the Cahto Tribal members as well as other Mendocino County Tribes that it's time to journey to the ocean for the summer months. This walk is a tribute to the elders that are gone and a tribute to the elders that are still with us. Being able to pass on the knowledge that was handed down to me is priceless. A right to our traditional ways of life and traditional fishing and gathering areas along the Mendocino Coast line is what keeps our Native families grounded. It is much like the tradition of attending church on Christmas Eve, or Easter Sunday.

## **Suggestion for new emerging data sets:**

The data sets for the North Coast Regional Profile is quite inaccurate. Our Tribal populations make up 10 percent of Mendocino County population so we should have the same data sets as the rest of Mendocino County. All Tribes should be given a specific place on all tables and charts for Mendocino County populations. Consulting with all Mendocino County Tribal Governments when implementing such an important law as the Marine Life Protection Act is extremely important.

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Suzanne Romero  
Council Member



**From:** dave vera  
**Sent:** Wednesday, January 13, 2010 5:46 PM  
**To:** MLPAComments  
**Subject:** errors in the report

In Mendocino county the main sport rock fish is the blue rock fish not the black rock fish which becomes the predominant sport rock fish in the Humboldt county area.

**From:** Eric Knaggs  
**Sent:** Wednesday, January 13, 2010 10:01 AM  
**To:** MLPAComments  
**Subject:** Comments on Draft Regional Profile of the North Coast Study Region

Dear Sirs: I will be sending a number of comments regarding the Draft Regional Profile of the North Coast Study Region. I have several requests of you as follows:

1. Would you please respond to this e-mail so that I know that I have your correct address and you received this message?
2. I am attaching a Word file to this e-mail. I will be sending additional comments in Word files also. Therefore, would you please open the attached file and make sure you can read it, or let me know of any problems ( e.g., there was no attached file).

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Comments:

1. I request a comment period extension of one week to January 22, 2010 because of the earthquake in the North Coast Study Region (Eureka), the Governor's declared state of emergency in Humboldt County due to the earthquake, and because State and MLPAI staff were not available during the holiday period to assist the public.
2. If there is no extension for the comment period, a reasonable person would logically assume that comments may be submitted until 11:59 P.M. on January 15, 2010 since no cut off time was stated for this date.

Overall Profile Comments:

1. There is conflicting information, grammar errors, and poorly presented information throughout the profile. It appears that numerous authors wrote the report; however, it appears no one edited or coordinated the various sections into one final report. These problems make the report information very difficult to use for the North Coast Study Region MPA planning process. I would recommend another draft of this profile be written and sent out for public comment again.
2. It would appear very few of the writers have knowledge of the North Coast Study Region other than the fisheries information sections. In other words, how many of the writers have lived or worked in this study area? My guess is very few based on the information presented.
3. A logical person would reasonably assume that the North Coast Study Area Profile's primary purpose is to give sufficient details for the MPA planning and placement process. While many of the profile sections gave good general information, it would be difficult to

use this information for MPA planning and placement purposes. For example, Section 5.2 on “Native American Coastal Communities” was so short and general that it did not give good information on site usage to help with MPA planning and location. The large amount of information that is available on native American middens would be extremely useful for the North Coast Study Region.

#### Formatting Comments:

1. The Draft Regional Profile of the North Coast Study Region (profile) had page numbers that were inconsistent or missing. Therefore, it was hard to reference a comment to a particular page.
2. The table of contents should list the “sections” as chapters. The only way to identify chapters was on the top or bottom of a page; Therefore, spell out in the table of contents: “Chapter 1 Introduction.....1.
3. Is it the intent of the profile writers to define an acronym and initials in both the Executive Summary and the text of the profile (e.g., California Department of Fish and Game (DFG) on page vii of the executive summary and Chapter 1, page 1)? This pattern is repeated through out the profile and takes up unnecessary space.

#### Executive Summary Comments:

On page ix of the Executive Summary, there is a reference to “rocks, islets, and islands,” but these terms are never defined in the profile. These terms need to be defined somewhere in the profile. The islands referenced in this profile has different habitats and masses (size) than islands in the South Coast Study Region profile.

#### Chapter 1 Comments:

1. Explanation of the MLPAI, its role, and creation needs to be expanded and clarified (Second paragraph of Chapter 1- page 1 in the profile). Current statement would be unclear to a layperson reading this document.
2. Page 2-paragraph 2: Marine Life Protection Act has already been defined as MLPA; therefore, it does not need to be defined again.

#### Chapter 2 Comments:

1. Chapter 2, pages 3-4: Where do the “Del Norte and Mendocino Coasts” start and stop? The description of these “coasts” is very confusing when comparing these descriptions with the county names of Del Norte, Humboldt, and Mendocino. Since there is no boundary description of these two coasts it appears the “Humboldt Coast” is missing. These two “Coast” names may be bio-region names with only two divisions versus three county lines. Please clarify.
2. It is stated on page 4 that the Eel River is one of California’s most important spawning streams for “Chinook salmon” and coastal cutthroat trout. Please check these references and clarify since the most southerly important spawning river for the coastal cutthroat is

the Smith River, and Chinook salmon management in this area is based on spawner/recruits from the Klamath River, and not the Eel River.

### Chapter 3 Comments:

1. Tables should either be explained in the profile text or stand on their own merit. Table 3.1-1 (pages 8 and 9) does neither and should be reformatted and clarified to be more understandable to lay people. In addition, there are numerous conflicting data and errors between this table and the text in the profile
2. Table 3.1-1 shows the total shoreline (length mi) = 366, but in the Executive Summary/Regional Overview it is stated “the straight line distance is approximately 223 statute miles or 640 statute miles of actual shoreline. One of these statements needs to be corrected or an explanation of the difference needs to be added to the profile.
3. Table 3.1-1 shows the total area (mi<sup>2</sup>) = 1026.5, but in the Executive Summary/Regional Overview it is stated this number is 1023. One of these statements needs to be corrected or an explanation of the difference needs to be added to the profile.
4. In Table 3.1-1 a number of percentage signs (%) are missing from this table.
5. The “Hard-and Soft-bottom Habitats and Canyon (Area, mi<sup>2</sup>)” is a very confusing section of table 3.1-1. How can you have the “Total Soft Bottom Habitat (all depths)” add up to 108.8% of the “Hard-and Soft Bottom Habitats and Canyon (Area mi<sup>2</sup>)”? How can Total Soft Bottom Habitat which is a subsection of Hard-and Soft Bottom Habitats and Canyons as presented in this table be more than 100%. Several subsets of habitats also add up to more than 100%. This needs to be clarified and explained.
6. Table 3.1-3 lists depth zones as “Intertidal to 200 m (0-16fm). This is wrong and should be stated as “Intertidal to 30 m (0-16 fm). Otherwise the areas by depth in Area (mi<sup>2</sup>) is wrong.
7. Section 3.1.2 Intertidal Zones, first paragraph, add wording in red: “The study region is dominated by **fine to medium grained** sandy beaches, followed by salt marshes, sheltered tidal flats, and exposed wave-cut platforms in bedrock, in that order.” Table 3.1-4 lists many different types on beaches.
8. Page 11: “The following rocky shore types have been mapped in the north coast study region by NOAA for the ~~Environmental Sensitivity Index~~ **ESI** program (2006) (Table 3.1-4). Environmental Sensitivity Index already defined.
9. Page 12: “Over half of the rocky shore in the study region is **exposed** wave-cut platform **in bedrock**. Per Table 3.1-4.
10. Page 12: “**Sheltered rocky shore:** Bedrock shores of variable slope (cliffs to ledges) sheltered from wave exposure. These make up roughly ~~two percent~~ **< 1.0%** of the rocky shore in the study region.” Per Table 3.1-4
11. Page 12: **Sandy and Gravel Beaches** Title should represent text description on page 12.
12. Page 13: “These areas provide essential foraging grounds for migratory bird species ~~in their abundance of~~ **because of abundant** invertebrates, including clams, snails, crabs, worms and the burrowing ghost shrimp (*Neotrypaea californiensis*), as well as eelgrass (*Zostera* spp.).” ‘In their abundance’ does not make any sense in this context.
13. Page 13: Should Entrance Bay portion of Humboldt Bay be capitalized?

14. In the statement on page 13 “Estuaries in the north coast study region contain open water and soft-bottom habitats, coastal marsh and tidal flats (described in section 3.1.2),” where are open water habitats described in section 3.1.2)?
15. The title “**3.1.3 Estuaries and Lagoons**” should be changed to “3.1.3 Estuaries, Lagoons, and Bays” based on the descriptions in the text that follows in this section.
16. Page 13 : “the NOAA Environmental Sensitivity Index (NOAA-ESI),” has already been defined previously in the document.
17. Page 13 : “A number of estuaries and lagoons occur along the approximately 225-mile coastline of the north coast study region.” Shouldn’t this be 366 miles per Table 3.1-1? See comment 2 above.
18. Page 14: “Marine migrant species” I would delete the term migrant and just say “marine species.” Probably the term migrant means, in this context, migrating in and out of the estuaries.
19. Page 15 it is stated, “The Smith River estuary supports at least 28 fish species, including listed salmonid species (Coho, Chinook, chum, steelhead, and coastal cutthroat trout),” Is the chum salmon a listed species? Chum salmon may occur occasionally in the Smith River estuary, but by no means “supports” this species.
20. Page 15: “California Department of Parks and Recreation (State Parks)” should be defined earlier in this document.
21. Page 15: “The Klamath River estuary is extremely important to many anadromous fishes, some of which are listed species, including Coho salmon, Chinook salmon, steelhead, coastal cutthroat trout, eulachon....” ...Is the eulachon a listed species?
22. Page 18: “**Mattole River Estuary:** The Mattole River estuary is located near the town of Petrolia, approximately 40 miles south of Eureka and 15 miles south of Humboldt Bay. It is similar to the nearby Bear River estuary in two ways:” If this statement is true, why isn’t the Bear River estuary listed separately in this section of the profile?
23. Section 3.1.3 on estuaries, lagoons, and bays should list these areas in geographic location from north to south. Therefore, the Albion River Estuary (8 miles south of Fort Bragg) should be listed before the Big River Estuary (10 miles south of Fort Bragg).
24. Page 20: “Eradication efforts began in 2003 with the removal of 284 square miles of dwarf eelgrass (Schlosser and Eicher 2007).” This 284 square miles seems like a very high number for the North Coast Region, would you please check this number and/or was this for the North Coast Region or all of California? Basically, this 284 square miles would be over a 15 mile X 15 mile section!
25. Page 21 should be reworded as “In California, there are two primary canopy-forming kelp, ~~giant kelp~~, *Macrocystis* sp. (~~hereafter called giant kelp~~), and ~~bull kelp~~, *Nereocystis luetkeana* (~~hereafter bull kelp~~).
26. Page 21; Shouldn’t Tables 3.1-1 and 3.1-5 on kelp canopy have the same information?
27. Page 21: there is no Table “3.1.5.1” only Table 3.1-5.
28. Page 22: “subtidal kelps (e.g. ~~Nereocystis~~ sp. **Bull kelp**, *Pterygophora* sp. and *Laminaria* sp.).” *Nereocystis* previously defined as bull kelp.
29. Page 22: “Noyo river” should be Noyo River.
30. Pages 22 & 23: Do you need Table 3.1-6 since this data is also presented in Table 3.1-1.
31. Page 24: **3.1.10 Offshore Rocks, Islets, and Islands.** I still believe it would be a good idea to define rocks, islets, and islands since these terms are used interchangeably, and

the north coast “islands” do not have the same mass as islands in the South Coast Study Region.

**32. Page 26: “3.2.1 Depleted and Overfished Species**

This section describes depleted and overfished species that occur within the south coast study region. This section is for the north coast study region.

33. Page 27: “The Pacific Fishery Management Council (PFMC)”
34. Page 27: Should be changed as follows: The **State** Nearshore Fishery Management Plan, or **California** Nearshore Fishery Management Plan. Page 29 refers to this plan as the California Nearshore Fishery Management Plan.
35. Page 28: Change wording to “In April 2009, the ~~Pacific Fishery Management Council (PFMC)~~,”
36. Page 28; change wording as follows: “from ~~Pacific Fishery Management Council~~ **PFMC** and California Fish and Game Commission...”
37. Page 31: “the National Marine Fisheries Service (NMFS)” should be defined much earlier in the profile.
38. page 33: “Fort Brag.” Should be Fort Bragg.
39. Page 34; “The fishery for the gaper clams, the Pacific gaper (~~*Tresus nuttalli*~~) and the fat gaper (~~*Tresus capax*~~), is almost exclusively sport,...” Scientific name previously defined.
40. Page 40: Table 3.2-1 is incomplete compared to other porpoise and dolphins mentioned in the text of habitats they occupy such as common and bottlenose porpoise.

General comments: All specific geographic locations should be followed by the county in which they occurred (e.g., Point Conception (Santa Barbara County)); some terms such as “scrap and wracks” need to be translated into layman terms, and there should be consistent measurement terms instead of the switching between meters/feet/miles/meters.

Chapter 4 Comments:

1. Page 50: “resident migrating species” needs to be defined, this is not common terminology.
2. Page 50: “barred sand bass” not a north coast species
3. Page 50: “However, due to degradation of watersheds and freshwater ecosystems and the presence of barriers to fish passage, stocks of native anadromous fish, such as steelhead trout, Coho and Chinook salmon, Pacific lamprey and sturgeon, are limited in northern California.” This statement does not make any sense. These species are not limited to northern California. Statement should be rewritten.
4. Page 51: “The north coast study region extends for over 640 miles along the Californian coast, includes 1,023 square miles of ocean” these figures do not agree with mileages in Chapter 3, Table 3.1-1, and Executive Summary.
5. Page 51 “...which is constituted by...” Is this phrase suppose to read “...which is composed of...” ?
6. Page 54: “In 2004, roughly 86 commercial vessels identified their home port within northern California (ARB 2004). This number is low, particularly for commercial fishing boats. Contact the California Department of Fish and Game for the number of commercial fishing boats registered in the north coast region or by port. This agency should have 2008-09 and 2009-10 season registered commercial fishing boats to date.

7. Page 57: Please identify areas of special biological significance (ASBS) by county. I am not familiar with the “King Range.”
8. Page 57&58: “Fourteen areas in the north coast study region have been designated as CCAs (Table 4.3-4).” Table 4.3-4 lists fifteen areas of CCAs.

General comments: There needs to be a common naming convention throughout the profile text for plants and animals. Sometime common names of plants and animals are defined with the scientific name, but not always. This is very confusing since some common names can mean different species. I would recommend that a scientific name is used after the common name of a plant or animal when the common name is first used in the profile’s text.

There is a lot of very general information in Chapter 4, and I believe it would be very hard to establish MPAs with this general information. This general information should be excluded (no added value to the information imparted), and/or more specific information should be include to help in locating potential MPAs.

#### Chapter 5 Comments:

1. The data in Table 5.1-1, 5.1-2, and 5.1-3 seem very old (1999 & 2000) and newer data should be used. The State of California Francise Tax Board, and elected representatives for this area have better information.
2. Page 67: Why was this statement included for coastal counties “Rather, major cities like Redding are situated inland” when Redding is in Shasta County and this not a coastal county?
3. Page 68: Capitalize City...”(Crescent eCity in Del Norte and Eureka in Humboldt)”
4. How were coastal cities selected in sections 5.1.1, 5.1.2, and 5.1.3? This needs to be defined since the coastal cities of Arcata, Ferndale, McKinleyville, and Klamath were not included as “coastal cities” in these sections.
5. Pages 67 & 68: Section 5.1.4 Population Projections text needs to be completely rewritten. The impact is not about percentages of growth but the increase in the number of people. Using data from Table 5.1-4, the population growth in Mendocino County would have a greater impact on the coast than the highest percentage change of Del Norte County. Percentages are very tricky to use, and are not used correctly in this section regarding potential population changes and what the writer is trying to impart.
6. **5.2 Native American Coastal Communities:** I would include an economic section on Indian gaming (casinos) since this is a large economic resource and income for coastal communities such as Trinidad, Crescent City, Klamath, and Blue Lake. I think it is also important to include a section on the large studies of Indian middens and their uses of marine resources for food and in their culture. State of California, Department of Parks staff can help compile this information.
7. Page 69 “The California Department of Fish and Game (DFG)” has already been defined as DFG.
8. Page 71: “**Del Norte County** – In 2008, there were 117 commercial vessels” this numbers differs significantly from the 86 commercial vessels reported in northern California on Page 54 of this profile.

9. Page 71: the phrase should have a closing parenthesis: (note that pink shrimp and trawl fisheries (e.g. slope rockfish) occur outside of state waters and therefore outside the study region).
10. Page 71: the terms ‘deeper nearshore’ and ‘shallow nearshore’ should be defined in the text. These phrases sound like habitat types without definitions.
11. Page 71: “**Humboldt County** - In 2008, there were 122 commercial vessels” this number differs significantly from the 86 commercial vessels reported in northern California on Page 54 of this profile.
12. Page 71 the phrase should have a closing parenthesis: “(note that highly migratory (e.g. tuna) and trawl fisheries (e.g. slope rockfish) occur outside of state waters and therefore outside the study region).”
13. Page 71: I’m suspicious of the following statement for Humboldt County: “The total value of all landings in 2008 was almost six million dollars, with over three million pounds landed.” since these are the exact same figures as reported for Del Norte County. Sometimes coincidences like these occur, but it is very unusual.
14. Page 71: The following statement is very confusing: “The Fort Bragg Port Complex includes ports from Westport to Point Arena. However, the ports of Port Arena and Anchor Bay are not within the bounds of the study region. They were included in the Regional Profile for the MLPA north central coast study region. While some landings in these two ports may have been caught within the study region, they have not been included in this section.” If Port Arena and Anchor Bay are not in the North Coast Study region, but were included (for what data?) then why were the landings for these two ports excluded?
15. Page 72: In regards to the following statement: “Types of socioeconomic indicator data included are summarized within the Environmental Impact Statement in *Socioeconomic Table 4-1: Summary of Criteria for Evaluating Socioeconomic Consequences of the Alternatives*.” There is no Table 4.1. Does the writer mean Table 5.1-1, 5.1-2, and 5.1-3, or figures 5.1-1, 5.1-2, and 5.1-3?
16. Page 73: I could not find a text reference to Figure 5.3-1. It could be the missing information on page 72 within the parenthesis for the following phrase: “....period from 1999 through 2008 ().”
17. Figures on pages 73 & 74 differ from the numbers of commercial vessels reported on page 54 of the profile.
18. Page 75: Table 5.3-2 “Shrimp, Coonstripe<sup>b</sup>” The superscript for footnote “b” needs to be moved to the line above “Shallow Nearshore.” Also this is the first place Deeper Nearshore and Shallow Nearshore” is defined although these terms are used earlier in the text.
19. Pages 75, 76, & 77 for Tables 5.3-2, 5.3-3, & 5.3-4: I would sort these data in descending order (e.g., Average Annual Landings) to make them more easily understood by a layperson.
20. Pages 75, 76, & 77 for Tables 5.3-2, 5.3-3, & 5.3-4: The market categories are defined by footnotes in Tables 5.3-2 and 5.3-3, but in Table 5.3-4 these market categories are only referenced in Appendix B. This is an inconsistency and should be uniform for all three Tables.
21. Pages 75 & 76 for Tables 5.3-2 & 5.3-3 the term “Urchin” should be changed to “Urchin, Red” since this is the term used in Table 5.3-4 and the text on Page 77.



22. Tables 5.3-2 & 5.3-3 should have the name “Dungeness Crab” changed to “Crab, Dungeness” for consistency with Table 5.3-4 and the other market category names.
23. Page 77; In the listing “**Invertebrate Fisheries:** Dungeness crab, red urchin, coonstripe shrimp, jumbo squid, crab and spot prawn.” Should the term “crab” be “rock crab” as shown in Table 5.3-4?
24. The market category terms need to be consistent in Tables 5.3-2, 5.3-3, & 5.3-4 (e.g., Dungeness Crab or Crab, Dungeness).
25. Page 77: This statement is true; however, DFG has log book systems for commercial catch and effort areas that give finer detail to landing areas than from commercial fish landing receipts, and should be presented for the establishing and modifying MPAs.
26. Page 80: It is stated “However, past beds in the study region were leased to abalone farmers who harvested the kelp as feed for their abalone.” Since no administrative beds are currently leased, how should the terms “past beds” be interpreted? Should this be “past leases.”
27. Page 80: “Bull kelp harvested for human consumption fall under a different set of regulations and is described below.” Does this statement refer to section 5.4.2? It is not described in the paragraph that immediately follows this statement.
28. Page 81 states: “Interest in edible algae collection in both Humboldt and Del Norte Counties has been expanding since 2005 and 2007, respectively, although the harvest rates are less than those of Mendocino County (Table 5.3-3).” I could find no reference to edible algae collection in Table 5.3-3.
29. Page 81, Table 5.4-2; uses the term “bullwhip kelp” which is inconsistent with term “bull kelp” used through the rest of the text.
30. Page 82: **5.4.3 Aquaculture Leases:** It is interesting that in Chapter 2, page 4 the following statement is made “More than 60% of the oysters sold in California are grown in Humboldt Bay (Schlosser et al. 2009).” Yet, this statement is not verified or mentioned in section 5.4.3.
31. Page 82: “Chinook salmon, rockfishes (*Sebastes* spp.), and lingcod, and Pacific halibut are all examples of important finfish targeted by coastal boat-based anglers throughout the study region (Table 5.5-1 and 5.4-2).” This is an interesting statement since Pacific halibut is not listed in Table 5.5-1 and Table 5.4-2 deals with edible algae.
32. Page 82: “Surfperches (*Embiotocidae* spp.), nearshore rockfishes, and greenlings are examples of fishes commonly targeted by shore-based angler (Table 5.4-1).” This is another interesting statement since table 5.4-1 deals with kelp leasing.
33. Page 83: “Also important to the recreational fishery in the north coast study region are the harvest of invertebrates such as red abalone (Table 5.4-3).” Another interesting reference since Table 5.4-3 deals with edible algae.
34. Page 83 “California Recreational Fisheries Survey (CRFS)” has been previously defined.
35. Page 83: “CPFVs” this term has not been defined previously.
36. Page 83: Table 5.5-1: Why is “other” under the column “Type of Fish” in the middle of a descending sort of catch numbers?
37. Page 83: Table 5.5-1: Last two column titled “Dominant Species and Species Harvested” is not explained. What do these listed numbers mean?
38. Page 83: Table 5.5-1: Please define “Redwood and Wine Districts.”
39. Page 85: “Commercial passenger fishing vessels (CPFVs)” this term has been previously defined.

40. Page 85: Table 5.5-4 species presented should be the same as those listed in Table 5.5-1. Pacific halibut is not even listed in Table 5.5-1; therefore, showing this species with high catch percentage for CPFV and Private boats leads to misinterpretation of this information.
41. Page 87: add County after “in Del Norte.”
42. Page 87: “fat and Pacific gaper clams (*Tresus capax* and *T. nuttallii*), Washington and California butterclams (*Saxidomus nuttallii* and *S. gigantea*),” have previously been defined by scientific name.
43. Page 87: “According to a Department”, This name Department should be changed to DFG.
44. Page 87: “According to a Department creel census survey conducted from 1975 to 1989....” It should be stated this information was collected for Humboldt Bay only, not the total north coast study region as implied.
45. Page 87: “rock scallop” has not defined with a scientific name.
46. Page 88: “in annually In recent years.” : The “in” should be deleted and the second “In” should not be in capitals.
47. Page 89 and Figure 5.6-1: It should be clarified that this information is for all of Mendocino County and not just the area within the north coast study area.
48. Page 91: “The study region’s approximately 225 miles of coastline..” This 225 number of coastline miles conflicts with other sections of this profile such as the Executive Summary and Chapter 3.
49. page 92: “California beaches are owned by the public, and as a result, one does not necessarily need to pay to visit the beach.” Is this statement true? I thought public beaches were up to mean high tide line only. Perhaps it should be stated that beaches within the MLPA are public.
50. Page 92; “In addition to the state parks adjacent to shore, the counties and some of the cities in the north coast study region maintain one or more public beaches or coastal access points.” These should be listed to help in the MPA planning process.
51. Page 96: Table 5.7-7: percentages should not be carried out to 1/100 of a percent. Should round percentage to nearest one percent. This table was very confusing for percentages of less than one percent.
52. General Comment: One of the biggest problems in the profile is not referencing publications or government documents (e.g., Coastal Management & Human Use Atlas) and listing these in the reference section. Therefore, it is extremely difficult to look up this referred to information mentioned in the profile text. All publications should be listed in the reference section of each chapter.

#### Chapter 6 Comments:

1. Page 104: Why was this page left blank?
2. Page 105: “California Department of Fish and Game” has previously been defined as DFG.
3. Page 105: “Federal Organic Act”: Is this correct, I have never heard of the Federal Organic Act?

#### Chapter 7 Comments:

1. Page 118: “Redwood national park” in previous texts of the Profile as “Redwood State and National Parks.” Perhaps an explanation of the interactions between the Redwood State and National Parks would help clarify this issue.
2. Page 119: “**The California Department of Fish and Game (DFG)**” has been previously defined in the profile.
3. Page 119: “**The California Department of Parks and Recreation (State Parks)**” has been previously defined in the profile.
4. I would add a description of the California Fish and Game Commission in section 7.1.2.
5. Page 122: move footnote 2 and 3 above or below the list of recognized tribes by county.
6. Some of the recognized tribes are outside the north coast study region. If these tribes use coastal marine resources either historically or present day, then this needs to be explained.

#### Chapter 8 Comments:

1. Page 125 “There are currently five MPAs in the north coast study region, all of which are smaller than the minimum size guidelines identified in the master plan for MPAs.” This minimum size should be stated here, so that a comparison can be made to the square miles given for each of the five existing MPAs.
2. Page 125: “NCSR” has not been defined in the profile in this manner.
3. Page 127: I would like to see each location listed by county in “**Table 8.3-1 List of terrestrial protected areas**”
4. page 127: add word minimum: “...smaller than the preferred **minimum** size guidelines..”

#### Chapter 9 Comments:

1. Page 129: “Several large rivers, including the Klamath, Eel, and Mattole rivers.” The Smith River is bigger than the Mattole; therefore it should be added to the list, and I do consider the Mattole a large river; therefore, it should be eliminated from the list.
2. The profile skips from page 129 to page 165 “Special Status Species Listing. Where are pages 130 through 164?”
3. Why is appendix D-2 (page 166) listed before Appendix A (which are pages 131-136)?
4. Where is Table D-1 referenced on page 166?

#### Appendices Comments:

1. Appendix B: table B-2, B-3, and B-4: If in the fisherman and vessels column, there is “<4<sup>b</sup>” the explanation in the footnote reads “<sup>b</sup> *The CFIS groups data into a “three or less” category to protect confidentiality.*” The question/comment is why is there a “0” in these two columns for several species landed (e.g., Urchin). Should this “0” be “<4<sup>b</sup>”?
2. Page 153: Appendix B 2.7 Smelt: Why is 2006 data preliminary?
3. Page 158, Figure C-3 through C-6: Gray scale made this pie chart and definitions hard to interpret. Could the definition boxes be enlarged?

4. Page 167? The “**Acronyms and Abbreviations Used in this Document**” section needs to be updated, many of the acronyms and abbreviations used in the North Coast Study Region profile are missing from this list (e.g., NCSR).
5. Page 166: Appendix D-2 is repeated twice. Recommend you delete first listing.

**From:** Stephen Kullmann  
**Sent:** Wednesday, January 13, 2010 12:02 PM  
**To:** MLPAComments  
**Subject:** NC Draft Regional Profile

I would like to make some comments on the NC Draft Regional Profile, specifically the sections regarding Tribes.

I am sure you have heard or will be hearing from many representatives of other tribes about the relative lack of information about tribes in the Draft Regional Profile. The tribes of the North Coast are individual sovereign nations with their own governments, traditions, and relationships to the coast. It is important to acknowledge that the California Tribes have no ratified treaties and have never ceded any of their traditional hunting and fishing rights.

As the Environmental Director for the Wiyot Tribe, I would also like to stress that many of the North Coast Tribes, ourselves included, have modern, sophisticated Environmental Departments and are active in protecting and restoring habitats within our ancestral territories. We work closely with federal, state, and local agencies and where possible combine traditional ecosystem management with modern science to ensure the well-being of the environment. Our protection of the environment is not something that occurred in the past, but is an ongoing process. The Wiyot Tribe works closely with the Humboldt Bay Harbor District on issues regarding the waters of Humboldt Bay and nearby estuaries, which are all in ancestral Wiyot Territory.

Thank you,

Stephen Kullman  
Environmental Director

From: Tomas DiFiore  
Sent: Wednesday, January 13, 2010 11:01 PM  
To: MLPAComments  
Subject: North Coast Draft Regional Profile

Hello all!

Here are 5 sections of comments on the Draft Regional Profile. I chose to provide suggestions for improvement in order to provide the best readily available information to stakeholders and decision-makers within the planning process.

"The MLPA Initiative staff appreciates your input and will strive to incorporate suggested improvements to the extent possible. A revised version of the regional profile will be produced as a resource for developing marine protected area proposals."

Questions regarding this document should be directed to MLPA staff also.

My final suggestion thought is that we should have been hired to write this document as the one we were handed is so inaccurate so as to render it useless in it's published form.

Respectfully Submitted  
Tomas DiFiore

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

**The California Marine Life Protection Act (MLPA) Initiative** has produced the Draft Regional Profile of the North Coast Study Region (Alder Creek near Point Arena in Mendocino County to the California-Oregon Border), ... as part of a joint fact-finding effort, communities and members of the public are invited to review the draft regional profile and provide suggestions for how to improve the document.

### Comments Specific to the 1st printed edition, December 2, 2009.

To:

California Marine Life Protection Act Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311 Sacramento, CA 95814  
<http://www.dfg.ca.gov/mlpa>  
[MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov)

From:

Tomas DiFiore  
POB 612 Little River  
CA 95456-0612  
Member - Albion Harbor Regional Alliance

All comments follow prescribed format of:

“Comments are most helpful if they are provided as a bulleted list, with page numbers and paragraphs identifying specific portions of the document. Additionally, suggestions are welcome for new sources of information that may be referenced in the revised version of the document. Comments will be incorporated to the extent possible and a revised version of the regional profile will be produced as an additional resource for developing marine protected area proposals.”

Comments begin with

- 1) page numbers and paragraphs,
- 2) paragraph or charts are quoted or referenced,
- 3) concerns, questions and comments are led by three asterisks (\*\*\*) and may be interspersed between sourced data for connectivity of concern (“suggestions are welcome for new sources of information”) and begin with (!!!).

While this may seem a long way around to a point, the NC Draft Regional Profile is scattered in it's organizational structure and distant relevant sections regarding the very same ecosystem components are portioned throughout the document. In this document, Live links will also be incorporated into these comments occasionally as all MPA, MLPA, and MLPAl data and outreach is facilitated through the digital medium including the Proposals use of MarineMap and Google Earth. Links are active going to related audio, video, PDF, document, digital file types or media.

#### 5.4.2 Edible Algae Harvest

p98 of 185 (p81 of Draft by Chapter)

Members of the genera, Porphyra, Laminaria, Monostroma, Postelsia, and other aquatic plants are classified as edible seaweeds by the DFG, as long as the algae is utilized as human food. The holder of an edible seaweed harvester's license **may take up to 4,000 pounds of Nereocystis** annually for human consumption. Edible seaweed license holders are not restricted to the kelp leasing laws above, so they may harvest bull kelp wherever it is found, granted they follow the weigh restriction described above. Regulations require that harvesters weigh and report the amount they harvest, and pay a royalty of \$24.00 to the State of California for each ton of seaweed harvested. These plants may be harvested throughout the year and within all state waters. Currently there are few regulations pertaining to the harvest of these ecologically and **economically important species**. Nevertheless, the DFG encourages sustainable harvest techniques such as cutting only the blade portion of certain plants such as the laminarians (kombu) and Postelsia palmaeformis (sea palm), and rotating harvest to allow adequate time for re-growth of previously harvested areas.

\*\*\*More clearly it might state that when dried in sunlight, **4,000 pounds of Nereocystis** - which is more than **four times** the amount listed in Table 5.4.2 - becomes at most 200lbs dry weight. If this were translated into dollars at the average price of edible seaweeds, the status of Nereocystis as an **economically important species** diminishes to an insignificant level. That works out to about \$2400.00 max at \$2.00 an ounce. This is further divided by the number of trips by kayak or on foot to the edge of shore and wading or using a tube. Reduced access is determined by weather and swell conditions. Drying is a two day process. Salts appear as blemishes if careful attention is not paid to drying. Accounts and sales are usually handled by the licensed harvester. There is no "storage" until the seaweed is dry. Space is another limiting factor.

p98 of 185 (p81 of Draft by Chapter)

The edible algae industry in the north coast study region is a cottage industry harvesting a variety of algae for human consumption. Since 2002, **sea palm was the most heavily harvested** species in the study region, **with algae workers** collecting an average of nearly 8,300 lbs over a 7-year period. Other prominent harvest yields over the same period include kombu averaging 4,700 pounds, Alaria marginata (wakame) averaging just under 3,900 pounds, and Porphyra spp. (nori) averaging over 2,700 pounds from 2002 to 2008 (Table 5.3-2). During this same period there were a total of six companies and two individuals harvesting edible algae in the study region. In 2008, there were approximately five harvesters with edible seaweed licenses that operated in the study region. However, the **latent capacity** in the study region is 28 license holders, which is based on the number of inactive harvesters who hold a kelp harvesters license. Overall, Edible seaweed harvesters have averaged just over 25,000 pounds of edible seaweed/year in the past seven years. A majority of this harvest comes from coastal waters within Mendocino County. Interest in edible algae collection in both Humboldt and Del Norte Counties has been expanding since 2005 and 2007, respectively, although the harvest rates are less than those of Mendocino County (Table 5.3-3).



## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

\*\*\*The adjective “heavily” harvested is not used anywhere else in the North Coast regional Profile Draft related to any fishery. Not even in the Section **3.2.1 Depleted and Overfished Species** is an adjective such as this used. **Terms usually used are “catch” or “harvest effort”.**

p43 of 185 (p26 of Draft by Chapter)

“depressed” fishery: “....the condition of a marine fishery that exhibits declining fish population abundance levels below those consistent with maximum sustainable yield” (FGC, §90.7). Similarly, the Pacific Fishery Management Council defines “overfished” as “Any stock or stock complex whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding.” (PFMC 2008).

\*\*\*I would also like to add that there is absolutely NO definition for, or scientific data, or LEK, or any proof whatsoever that harvest levels of any species of seaweed is “heavily harvested” in the North Coast 'Study Region'. Perhaps this term could be replaced or just stricken.

\*\*\*The latent capacity in the study region is 28 license holders, which is based on the number of inactive harvesters who hold a kelp harvesters license. Does this assessment take into account the honesty of license holders and a desire to just be able to fully relax at the shore?

\*\*\*The term **algae workers** should be changed to “harvesters” to better reflect the methods, mindset, and gear types used. Tools much more closely resemble garden tools; wheelbarrows, grape harvest knife, and woven bags.

**Table 5.4-2:** Edible algae harvest (average pounds) by species, 2002 to 2008

Species	Common Name	Average Pounds Harvested
Alaria marginata	wakame	3,865
Fucus spp.	bladderwrack	981
Gigartina spp.	grapestone	328
Laminaria spp.	kombu	4,745
Nereocystis luetkeana	bullwhip kelp	959
Palmaria mollis	pacific dulse	141
Porphyra spp.	nori	2,749
Postelsia palmaeformis	sea palm	8,339
Ulva spp.	sea lettuce	11

!!! Key to the survival of any sessile marine organism is the ability of the organism's mechanical design to meet the demands of its flow environment. All these edible seaweeds grow quite well in the rough continuous swells, waves, and splash zone of the region. Up against the rocks, the resilience of the sea vegetables (edible algae) cell structure is unparalleled.

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

Note: In the Table below only the most commonly harvested species are listed.

**Table 5.4-3:** Edible algae harvest (pounds) for all species by county

County	2002	2003	2004	2005	2006	2007	2008
<b>Del Norte County</b> (pounds harvested)						1,582	1,624
<b>Humboldt County</b> (pounds harvested)				709	3,487	3,315	2,923
<b>Mendocino County</b> (pounds harvested)	17,854	7,945	33,519	23,138	26,658	21,225	33,651
Total (pounds harvested)	17,854	7,945	33,519	23,847	30,145	26,122	38,198

\*\*\* **Edible seaweed harvesters** have averaged just over 25,000 pounds of edible seaweed/year in the past seven years. Just to clarify, **the Mendocino Coast averaged only 23,400 pounds** per year over 7 years. 163,390 divided by 7 is closer to **23,427 pounds**

All three counties: 177,360 divided by 7 = 25,375 pounds

*There is a small but unknown amount of kelp harvest occurring within the study region by recreational fishermen.* There is no closed season, closed hours, or minimum size limit, and the daily bag limit on all marine aquatic plants is 10 pounds wet weight. **No eel grass (*Zostera* sp.), surf grass (*Phyllospadix* sp.), or sea palm (*Postelsia* sp.) may be cut or disturbed by recreational harvesters.** In addition to this, an unknown amount of algae may be collected by tribal groups for subsistence use. This amount is expected to be small when compared to the commercial edible algae harvest described above.

\*\*\***No eel grass (*Zostera* sp.), surf grass (*Phyllospadix* sp.), or sea palm (*Postelsia* sp.) may be cut or disturbed by recreational harvesters.** Is this codified by law using those very words disturbed by recreational harvesters?

\*\*\*What is a recreational harvester? A recreational fishing license is required to harvest edible seaweed so I might surmise it is possibly a category of recreational fishing?

!!! Loss of eelgrass habitat from temperate estuaries worldwide often coincides with increased macroalgal accumulations resulting from increased delivery of **anthropogenic nitrogen**.  
from Conference: UNDERSTANDING THE ROLE OF MACROALGAE IN SHALLOW ESTUARIES 2002

\*\*\*Eelgrass is associated by spatial distribution of substrate in the draft profile and not actual Eelgrass. Will this be corrected soon?

!!! SOCIAL RANGE COMPLEX EIS/OEIS FINAL (DECEMBER 2008)  
MARINE PLANTS and INVERTEBRATES 3.6.2

***Benthic Marine Invertebrates***

“Soft-bottom benthic marine invertebrates live in or on the bottom sediments. Many species known as infauna are sedentary and live buried in the sediments for their entire life. Mobile species typically move freely on the surface of the sediments (epifauna) but usually bury themselves in the sediment to feed or to conceal themselves. Populations of deep benthic assemblages are randomly dispersed due to physical conditions that are fairly homogeneous and natural disturbances (e.g., predation) that are either of very low intensity or occur randomly in space and time. In general, the abundance and distribution of deep benthic assemblages appear to be persistent and stable in the SCB (Dailey et al. 1993), although assemblages in the offshore environment are generally impoverished due to sediment type, the absence of hard-bottom reefs, and sediment transport caused by cross-shelf movement of material seaward from shallower to deeper regions (SAIC and MEC 1995).”

“In general, the marine invertebrate assemblages inhabiting deep-water regions (greater than 100 ft [30 m]) can be characterized by depth (Figure 3.6-1). Species composition and abundance change with increasing water depth and changes in the presence of rock substrate.”

***Kelp 3.6.12***

“Kelp attaches to rocky substrate and can grow up to 50 m in length in nearshore areas of 2 to 30 m in depth. Several species of kelp occur throughout southern California; the most notable species is the giant kelp (*Macrocystis pyrifera*). Giant kelp forms large beds or forests that can extend up to 1 mile in width and several miles in length (Foster and Schiel 1985). The stems and blades of kelp can form overlying canopies on the water’s surface and provide unique habitat for plant and animal communities.”

“Several species of kelp may form canopies (e.g., *M. pyrifera*, *Pelagophycus porra*, *Egregia menziesii*, *Cystoseira osmundacea*), and south of Point Conception, *E. menziesii* is the dominant kelp in the inshore waters, *M. pyrifera* dominates the intermediate waters, and south of Point La Jolla, *P. porra* dominates the offshore waters. **The kelp beds along the U.S. Pacific coast and Channel Islands are the most extensive** and elaborate submarine forests in the world (Rodriguez et al. 2001), and provide refuge, forage, and nursery areas for nearly 800 animal and plant species in southern California including sea urchins, squid, abalone, spiny lobster, California halibut, Pacific mackerel, rockfish, and crab (Leet et al. 2001). In addition, kelp forests provide large quantities of drift kelp (detached kelp) to adjacent habitats; drift kelp provides an important resource to soft and rocky benthos,”

\*\*\*What are the infaunal and epifaunal assemblages associated with the North Coast Study Region? The description of “The kelp beds along the U.S. Pacific Coast and Channel Islands” as the “most elaborate underwater forests in the world”, is interesting. Tourism and recreational non-consumptive uses (diving) are promoted as (mitigation) to near-term socio-economic

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

impacts. How is the “non-consumptive” tourist view from under the North Coast Kelp Canopy look different to diving under the canopy of Giant Kelp?

\*\*\*There is no distinction of the area(squared) of the study region and especially the Mendocino Coast which is covered by (*Nereocystis*) kelp canopy, and other canopy forming edible algae such as (*Kombu*, *Wakame*) which are only found in shallow waters (harvested at very low tide) attached to the edges of rock outcroppings and exposed rocky shelves. This is a big confusion to people who don't harvest sea vegetables and think that “coastal habitat for kelp beds that is not used by seaweed harvesters is difficult to find” (NRDC external array proposal at Mendocino – cited under Rationale). What are the Draft Regional Profile and MarineMap data layer overlaps? As the Profile is improved in it's descriptive accuracy of biotic communities, demographics, and seafloor data, will MarineMap reflect these changes in new data?

### !!! Four Year Oregon SeaGrant Algae Study

Sustainable Harvesting Levels for Intertidal Species of Marine Algae

3/1/2002 – 6/30/2006      Lynda Shapiro      Date submitted: 7/26/2006

To guide future harvesting of marine macroalgal resources, the University of Oregon's Institute of Marine Biology (OIMB), in partnership with Oregon Parks and Recreation Department (OPRD), seeks Sea Grant funding in order to determine:

1. What is the current biomass and diversity of the intertidal algal resource?
2. What level of removal can be sustained? That is, what is the ability of the resource to recover?
3. What is the effect on recovery of different harvest timing and techniques?

“This was a study of five species in a limited number of locations. The species and sites were chosen because they were the species and locations in which potential harvesters had expressed interest.”

### Conclusions:

“We found no difference between 25% and 50% removal and, when holdfasts were left in place, neither of these removal quantities varied from control plots at the end of the three years of this study. Other than a tendency for more individuals of smaller size when entire fronds (including holdfasts) were harvested, no significant effects of harvest were found for the five species tracked in this study. We note that winter storms frequently result in removal of entire fronds and the bare rock becomes re-colonized quickly so we do not feel these results are alarming. However, in the interest of prudence, if harvesting is permitted, it might be limited to harvesting of thallus only and to only 25% of the total cover. Such harvesting should then be accompanied by longer-term monitoring of harvest effects.”

### Fucus Method of Harvest:

“The *Fucus* thallus harvest data did not show significant trends for any treatment (25% or 50%) or year. However, there was a difference between treatment types, with 25% thallus

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

harvests showing higher overall mean holdfast numbers than 50% thallus harvests for all sampling months in both 2003 and 2004. When removal of entire fronds (including holdfasts) was evaluated, the 2003 data showed harvested plots lower than control plots for both 25% and 50% frond harvests. In 2004, the total holdfast counts for both 25% and 50% frond harvests in 2004 showed a different pattern, with an increasing trend through all sampling months and, by the August sampling date, had a mean holdfast count higher than the control plots. No significant differences were found for method of harvest biomass analyses.”

\*\*\*The SAT on 121709 allowed LOP designations (guidelines) to be determined per MPA for the North Coast Region. The above information from an Oregon SeaGrant Study is relevant to the California North Coast 'Study' Region Profile, LOP, Key Habitats (including foraging) as is stated and maybe more so, at least than the MLPA NC Regional Profile Statement in Chapter 2 pgs 21-22 that “although the study region boundary ends at the political border between the states of California and Oregon, neighboring MPAs in southern Oregon could potentially provide habitat for species frequenting the waters of both states, and could supply recruits to MPAs established in the north coast study region..”

\*\*\*Though this question has been asked before (on the NCCRSg) it is worth reviewing. Can the SAT provide more information on what the composition of the assemblages is likely to be in and over these different substrate types? (so regional stakeholders know what they're trying to protect, if necessary)?

!!! *This response was adopted by the SAT at its October 1, 2007 meeting.*

**Response:** (Question 9c) There are no data in the MLPA North Central Coast Study Region to allow the science advisory team to predict how fish assemblages may vary across the three available substrate types. Based on studies conducted in the MLPA Central Coast Study Region, it is likely that sedimentary formations will support relatively more foliose red algae than benthic invert cover due to the friable/erodable nature of the rock which does not provide a firm substrate for invertebrates. It is also likely that the softer sedimentary substrate will support a greater proportion of burrowing species (e.g., Pholad clams).

\*\*\*What would the response be to the same question if applied to the NC Study Region?

!!! From the Central Coast MLPA Initiative Final Statement of Regulatory Reasons for Regulatory Action.... Excerpts in full, FOCUS: Regulatory Backdrop, Responses to interesting comments, Hearings and Regulatory Compliance, & Kelp Harvest Allowances  
Date of Final Statement of Reasons: May 14, 2007

“Also, it is important to understand that the charge of the peer review entity is not to authenticate the data presented to them, but to evaluate the scientific methodology employed and the facial plausibility of the conclusions that can be drawn therefrom. More importantly, the peer review entity is not expected to approve, disapprove, or comment on the wisdom of

those conclusions. This must be so, because reasonable people can in good faith arrive at different conclusions using the same data and methodology.”

\*\*\*Does this presuppose any particular ecosystem rationale or outcome as desirable?

6-7 February 2006 *Hosted and Facilitated by Aquarium of the Pacific Long Beach, CA*

\*\*\*Why does the (NMFS) continue to maintain certain regulations pertaining to foreign fishing should there be a situation in the future in which allowing limited foreign fishing in an underutilized fishery would be of advantage to the U.S. fishing industry?

*Summary of Maritime Literacy Planning Meeting 6-7 February 2006*

\*\*\*Is there a coefficient for bridging the socio-economic and biotic community impacts inherent in MLPAI and MPA design guidelines language - language that leaves out individuals, and small independent family businesses and which moves from biotic communities to the fishing industry in the same paragraph?

\*\*\*It seems plausible that concern of benefits to species listed as likely to benefit and related ecosystem services and functions are commodities in play for economy and industry. Is this connected to MSY models and MPA design guidelines linguistics referred to earlier? An example might be where the “harvest of sea vegetables” is changed to the language of extraction instead instead of a relation to nourishment and cultural use beyond language.

**!!! SPECIES DIVERSITY AND FOUNDATION SPECIES: POTENTIAL INDICATORS OF FISHERIES YIELDS AND MARINE ECOSYSTEM FUNCTIONING p87 BRACKEN ET AL.: BIODIVERSITY, FOUNDATION SPECIES, AND MARINE ECOSYSTEM MANAGEMENT CalCOFI Rep., Vol. 48, 2007**

“When we considered the foundation-species effects of producers (e.g., seaweeds and seagrasses) and consumers (e.g., bivalves, tubeworms, and corals) separately, we found no differences in the effects of producers and consumers on either abundance or diversity (fig. 4b). However, producers did not have a consistent positive effect on the diversity of associated taxa, largely due to occasional negative effects of canopy-forming seaweeds on both understory algae and fish. This result highlights the fact that organisms can have both positive and negative effects on associated taxa. Furthermore, the relative importance of positive versus negative interactions is likely to vary with environmental and ecological context (e.g., Bertness et al. 1999).”

#### ***Draft Regional Profile Chapter 5.4.2 Edible Algae Harvest***

The edible algae industry in the north coast study region is a cottage industry harvesting a variety of algae for human consumption. Since 2002, sea palm was the most heavily harvested species in the study region, with algae workers collecting an average of nearly 8,300 lbs over a 7-year period. Other prominent harvest yields over the same period include kombu averaging

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

4,700 pounds, *Alaria marginata* (wakame) averaging just under 3,900 pounds, and *Porphyra* spp. (nori) averaging over 2,700 pounds from 2002 to 2008 (Table 5.3-2).

\*\*\*These are wet weight amounts and wet seaweed is mostly sea water. So the representation by weight is not a complete picture. *Alaria* (Wakame) takes a long time to harvest, each frond is hand selected before being cut. Invertebrates and the biotic community are left onsite. View Mendocino *Alaria* (Wakame) harvest video filmed on the Mendocino Headlands summer of 2009 on YouTube.

### Ocean Harvest Mendocino Wakame

<http://www.youtube.com/watch?v=wiofA2yg3YE&feature=related>

and *Porphyra* harvest at Elk Cove/Greenwood Beach

### Nori Harvest Mendocino Coast, Greenwood Elk Cove

<http://www.youtube.com/watch?v=W2R6EBGGfgM>

### Ocean Harvest Sea Vegetables – Where The Sea Palm Grows

<http://www.youtube.com/watch?v=1Xh6vJmEVEw>

!!! LEK For seaweeds, “Ecosystem Impacts Evaluation” should not be (noted or referenced by) or attached to harvest level amounts by weight, this is a system model design fault. Seaweed as a foundation species and producer is the basis of the food chain, and is food in the sense of cellular fiber as it breaks down as drift algae, or decaying algae thrown up onshore by the tide.

\*\*\*If recorded weight of (species) harvested becomes important as a data field entry to determine impacts by humans including recreational harvest and commercial harvest levels, would it not follow then, that the same (weight of) biomass and area harvested, would be conferred upon the ecosystem measurement as a whole?

\*\*\*To clarify, if there is an area the size of a football field of Sea Palm *Postelsia*, and in 1 day of harvest, 200 pounds is removed by a commercial company of 2-3 harvesters, what is the total weight of the Sea Palm Canopy?

\*\*\*Are the ecosystem function and services of the canopy of Sea Palm *Postelsia* discussed as to impacts to canopy density and regrowth, it's importance by age class to invertebrates and associated species assemblages, specific to levels of harvest?

p95 of 185 (p81 of Draft by Chapter)

These plants may be harvested throughout the year and within all state waters.

\*\*\*Why would this be stated this way when all documentation points to North Coast Seaweeds as annuals. Which means they have a die back time, and a regeneration time, and a

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

time of indeterminate harvest dependent on several conditions – all variable and together totaling less than 60 days of 'actual harvest' schedule within in the North Coast Study Region?

1. Quality of growth, and surrounding conditions (when growth actually began) and
2. When, along the timeline of individual species life cycle the harvest occurs, and
3. The calm pace of sustainable hand harvest as a method, lends a capacity of ecosystem monitoring at the local level, and lastly
4. Access, weather, and surf conditions.

\*\*\*The days and location of harvest are listed along with amounts. Would it not be a more accurate picture of the “Edible Algae Harvest” occurring on the North Coast and it's relation to the dynamics of the ecosystem to include this calendar information along with basic tidal information?

\*\*\*How does the omission of the actual number of days and location of harvest, which are listed along with the amounts of “Edible Algae Harvested” on the North Coast, and it's potential to alter the ecosystem (as discussed 121709 by the SAT in Eureka) affect the discussion in the North Coast Profile (Draft)?

\*\*\*The omission of harvest methods (which are included in discussions of other fisheries) leave out the first consideration of “Edible Algae Harvesters”, and that is the height of the tides. Days of harvest are first determined by perusing a local tide book. Overlay are done per species and location. **Once again this counters any notion** put forth on p95 of 185 (p81 of Draft by Chapter) of These plants may be harvested throughout the year and within all state waters.

!!! LEK The sea water in (Nori and Fucus) which are rock weeds (turf algae) (even canopy by all LEK) and Nori in this case is a 'drying' canopy cover (duration and height of low tide coupled with time out of water) allows – Nori to buffer the effects of dessication. Fucus as a turf algae and can cover the rocky shores and exposed channels and rocks within the mid to low tidal distances. Nori can grow in a way that it covers stacks of Fucus just above low tide line.

!!! LEK The hand harvest of these species is done so carefully, and so much is left after harvest because regrowth is stewarded in this way.

!!! 07 2007 Commission MPA Request Kelp Status Population Author C Wilson

“The long term decline in giant kelp has been linked to unfavorable oceanographic conditions, pollution, and habitat degradation (Foster and Schiel 1985). These factors are not likely to be affected by establishment of a reserve. Relatively large concentrations of sea urchins, perhaps a result of fewer predators, can also negatively impact kelp populations (North 1983, Tegner and Dayton 1991). Even so, reserves may benefit kelp by protecting species which feed on urchins such as California sheephead and spiny lobster that are the subject of intense directed fisheries.”

“However, despite the protection offered to urchin predators in reserves urchins may still be



## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

more abundant in reserves than in adjacent areas subject to urchin harvest. Tegner and Dayton (1991) suggested that the commercial fishery for red sea urchins has helped to increase the long term stability of kelp off Point Loma. Other evidence suggests that the abundance may actually benefit kelp, by reducing the proportion of certain urchin species. In the Anacapa Island Ecological Reserve Natural Area the proportion of large red urchins to small purple urchins is higher than that in adjacent fished areas. Tegner and Dayton (1991) suggested that the commercial fishery for red sea urchins has helped to increase the long term stability of kelp off Point Loma.”

\*\*\*In the North Coast 'Study' Region, aren't humans the only predator of urchins? How have the related ecosystem functions of urchins and Edible Algae (Seaweeds) been assessed in the North Coast Region?

\*\*\*What effects (impacts, benefits) on red and purple urchins are known by the harvest of Sea Palm (*Postelsia palmaeformis*) or Wakame (*Alaria marginata*), or Sweet Kombu (*Hedophyllum sessile*), or Ribbons ()? What are the ecosystem interactions function affected by natural fluctuations in species specific populations or biomass density?

\*\*\*Are data for Edible Algae (Seaweeds) biomass weighted for use in the modeling used to project or determine the presence of species by age class within spatial distribution overlays and data layers?

\*\*\*Are data for Edible Algae (Seaweeds) biomass presence in a specific location calculated by age class and substrate or age class and habitat type?

\*\*\*Do canopy and biomass models of Edible Algae (Seaweeds) take into account the changing age class and reproductive rate of overstory and understory (same species) components and the evolving or continuing value to ecosystem services?

\*\*\*What are the valuation parameters for the interpretation and computation of source data into the “Draft Profile” and any subsequent “mirror” or “modeling projection” as a data layer in MarineMap?

\*\*\*What evaluation methods were employed to determine where the “dock ends” for the commercial harvest of Edible Algae (including bull kelp)?

\*\*\*Ex-vessel prices of a small very niche market item, excludes sustainability conventions built into the harvest methods of Edible Algae and Seaweed on the North Coast and the total time of involvement from harvest to sale in the “small but lucrative cottage industry”. It is the very marketing and processing that helps to keep it all small. So how is “lucrative” defined in the context of “Edible Seaweed Harvest” on the North Coast?

!!! LEK

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

“According to Seibin and Teruko Arasaki, authors of *Vegetables from the Sea*, “All of the minerals required by human beings, including calcium, sodium, magnesium, potassium, iodine, iron, and zinc are present in sufficient amounts. In addition, there are many trace elements in seaweeds.” Edible plants from the sea also contain important vitamins including vitamin A (in the form of beta-carotene), B1, B2, B6, niacin, vitamin C, pantothenic acid, and folic acid. Analysis has shown trace amounts of vitamin B12, which rarely occurs in land vegetables.”

“Sea vegetables classified as brown algae, including arame, hijiki, kombu and wakame, have been shown to cleanse the body of toxic pollutants. Scientific research has demonstrated that these plants, which are abundant in alginic acid, bind with any heavy metals in the intestines, render them indigestible, and cause them to be eliminated from the body.”

Subsistence harvest of seaweed and sea vegetables on the North Coast is not given enough breadth of credibility in text in the Draft Profile document for the reasons why people eat seaweed. The distance to the next point of easy access can exclude many people both resident and visitor. Personal health, and mental health, which is an aspect not stated as directly being associated with tourism, but I would imagine it is one of the main reasons people take vacations. What they do wherever they visit is often contingent upon availability of LEK and maybe even societal strata levels of health, wealth, age, race, and hobbies or interests, and lastly health. How many doctors recommend to a patient that they need to take a vacation?

Why people live here, on the North Coast, and the human physical and mental health benefits inherent in “gazing and grazing” is not mentioned. But the price of fish for food is, as are bulk prices for edible sea vegetables.

The cultural and social bias becomes apparent when the why is explored. “Why” people eat fish and that wild caught fish and the abalone are harvested and considered local food resources are self explanatory. Restaurants serve “locally caught” seafood.

\*\*\*The “why” of eating Sea Vegetable is not as apparent. Is there a way that the economic and cultural benefits (of mental health and physical well being) inherent in the consumption of those seaweeds and algae and kelps can be incorporated in documentation of Edible Seaweed Harvests?

\*\*\*The largest portion of people who eat seaweed eat it for its health benefits. How is this included in the demographics or recreation sections of the Draft Profile? Will it be included in the Final Version of the Draft Profile? What steps would be necessary to complete so that this data can be assessed for inclusion in later versions of the North Coast Regional Profile? What department or MLPA I Team contact might we seek out?

\*\*\*The appendices must at least consider listing sources to data that discusses the health benefits accrued to eating seaweed and sea vegetables, especially when there is a growing body of scientific literature and clinical case studies that support the health claims associated with

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

eating sea vegetables. The importance of this also includes **LEK and TEK** as was expressed at the loss of Sea Lion Cove and Stewards Point to Traditional Tribal access in the 'NCC Study Region' by the Kashia band of Pomo Indians. How can this best be accomplished?

**!!! TEK** This audio segment is offered as indication of the importance of the health benefits of subsistence harvests of Seaweed and Sea Vegetables for Indigenous Tribal People and by extension to anyone who knows.

<http://albioharbor.org/audiotakes/openthecoast.mp3>

*Them that knows it, feels it... Bob Marley*

**Sweet Kombu** (*Hedophyllum sessile*)

<http://ucjeps.berkeley.edu/guide/brown45.html>

### Biology/Ecology:

Incorporated by reference:

Sloan and Bartier 2000, p. 14; Lüning 1990; Armstrong 1989; Foster et al. 1988, p. 7; Lüning and Freshwater 1988, p. 312; Padilla 1988; Rostal and Simpson 1988; Armstrong 1987; Leigh et al. 1987, p. 1315; D'Antonio 1986b, p. 267; Duggins and Dethier 1985; Padilla 1985; Turner 1985, p. 86; Turner 1983a, p. 63; Turner 1983b, p. 733; Dethier 1982, p. 63; Druehl and Green 1982, p. 167; Sousa et al. 1981, p. 297; Paine 1980, p. 676; Dayton 1975; Himmelman and Carefoot 1975; Hruby 1975, p. 883; Paine 1974, p. 103; Druehl 1970, p. 239; Druehl 1969, p. 163; Paine and Vadas 1969a, p. 713; Paine and Vadas 1969b, p. 80; R. Lee 1965a, p. 14; R. Lee 1965b, p. 111; Widdowson 1965b, p. 1428; Scagel 1961, p. 528; Stephenson and Stephenson 1961b, p. 234; Rigg and Miller 1949; Doty 1946, p. 323

From Cape Mendocino to Point Arena **Sweet Kombu** (*Hedophyllum sessile*) is abundant, on rocks of the mid and low intertidal in exposed habitats. Johansen 1966a, p. 102. Kjeldsen 1995, pp. 22, 23

The eating of fresh sea vegetable (edible algae and seaweed) at the shore, when freshly harvested offers the most health benefits and brings smiles to the faces of young and old alike. Local seaweed harvesters are out at low tide and further provide a watchful eye on nearshore and intertidal resources. Seaweed harvests by it's very nature in the North Coast Region, given the rural isolated geographic impediments to large urban settings, provides community and congregation around a simple food resource.

**\*\*\***The North Coast Regional Draft Profile mentions nothing of this aspect of coastal community involvement at the shore. Can this be corrected? What survey questions might make this information available as I am sure it has been overlooked?

## Draft Regional Profile of the North Coast Study Region – Edible Algae Comments

\*\*\*What are the characteristics of the role of **Sweet Kombu** (*Hedophyllum sessile*) in ecosystem function? It has one of the longer growth periods and is at different both underwater on exposed rocky shores and then above water, which is when it is harvested. Because of it's vertical growth, it is harvested like a head of lettuce. But once again, the amount harvested by percentage is so minimal and no rock or hard substrate is left exposed. WHAT IS THE PERCENT OF AREA in the North Coast Study Region of Edible Algae species that is harvested compared to the overall area in the 'study region' of "all species" of seaweed? What are the comparative ecosystem functions and services of the individual seaweed species on the North Coast and the aggregate sum? Are there any calculations that are site specific on the Mendocino Coast where most edible algae and seaweed including bull kelp are harvested?

\*\*\*Lastly are there any places in the three counties of the North Coast Region that may become sites for emergency oil spill response teams or or 'safe harbor' locations?

Respectfully Submitted  
Tomas DiFiore

## Draft Regional Profile of the North Coast Study Region – General Comments

**The California Marine Life Protection Act (MLPA) Initiative** has produced the Draft Regional Profile of the North Coast Study Region (Alder Creek near Point Arena in Mendocino County to the California-Oregon Border), ... as part of a joint fact-finding effort, communities and members of the public are invited to review the draft regional profile and provide suggestions for how to improve the document.

### Comments Specific to the 1st printed edition, December 2, 2009.

To:

California Marine Life Protection Act Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311 Sacramento, CA 95814  
<http://www.dfg.ca.gov/mlpa>  
[MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov)

From:

Tomas DiFiore  
POB 612 Little River  
CA 95456-0612  
Member - Albion Harbor Regional Alliance

All comments follow prescribed format of:

“Comments are most helpful if they are provided as a bulleted list, with page numbers and paragraphs identifying specific portions of the document. Additionally, suggestions are welcome for new sources of information that may be referenced in the revised version of the document. Comments will be incorporated to the extent possible and a revised version of the regional profile will be produced as an additional resource for developing marine protected area proposals.”

Comments begin with

- 1) page numbers and paragraphs,
- 2) paragraph or charts are quoted or referenced,
- 3) concerns, questions and comments are led by three asterisks (\*\*\*) and may be interspersed between sourced data for connectivity of concern (“suggestions are welcome for new sources of information”) and begin with (!!!).

While this may seem a long way around to a point, the NC Draft Regional Profile is scattered in it's organizational structure and distant relevant sections regarding the very same ecosystem components are portioned throughout the document. In this document, Live links will also be incorporated into these comments occasionally as all MPA, MLPA, and MLPAl data and outreach is facilitated through the digital medium including the Proposals use of MarineMap and Google Earth. Links are active going to related audio, video, PDF, document, digital file types or media.

## Draft Regional Profile of the North Coast Study Region – General Comments

In the Executive Summary on pg 13 of 185

- kelp forests dominated by bull kelp and associated species assemblages;

\*\*\*Does the term include both marine flora and fauna, including coral assemblages and seafloor macro-algae? Invertebrates, marine mammals, pelagic birds, estuarine and inland nesting birds (Heron, Egret) which are often seen standing on assemblages of canopy of bull kelp (*Nereocystis luetkeana*) in bays feeding?

- opportunities for a range of non-consumptive activities, such as diving, surfing, kayaking, beach-going, swimming, and shore and boat-based wildlife viewing.

\*\*\*Does this include the consumption of “seafood” at local restaurants by these user groups classified as “non-consumptive”? On what conditions and by what SAT analysis have kayak fishing or diving to gather or harvest seafood for recreational or subsistence use been closed through the MLPA Initiative process? Are any of these 'Special Closures'? Kayak harvesting of seaweed for commercial or subsistence is not addressed.

- Most of the study region is relatively shallow (less than 100 meters), although some areas, such as basins and canyons, are much deeper.

\*\*\*How is the term 'shallow' defined spatially in the context of the 'North Coast Study Region' given regional marine resource human bioeconomics and user group (by extraction method and limitations) i. e. abalone free dive depth limits, gear type depth limits, target species (and indicator species) temporal/spatial regulations accorded by species life cycle biomass?

In the Executive Summary on pg 14 of 185

Eelgrass (*Zostera sp.*) beds are found throughout the study region in estuaries (e.g. Humboldt Bay and Eel River estuaries). Eelgrass has also been reported from other locations, such as near the mouths of the Ten Mile River, Noyo River, and Albion River. Surfgrass (*Phyllospadix sp.*) is also found in the study region and is associated with open ocean habitat.

\*\*\*Eelgrass density throughout the North Coast 'Study' Region is not known correct? The importance of Eelgrass is widely known, it's extent is only associated by substrate currently.

Numerous rocks and islets located within the north coast study region provide important foraging and nesting sites for marine birds and are used as haulout sites by pinnipeds. In addition, the north coast study region contains offshore reefs, isolated offshore rocks, and two larger nearshore islands.

In the Executive Summary on pg 15 of 185

Coastal and estuarine vegetation and nutrients, which are carried to the open ocean, provide temporary food and shelter to species including juvenile fish.

\*\*\*See foraging marine birds and haulout sites by pinnipeds comments.  
Pages 7, 8, 14, 15 of this document.

## Draft Regional Profile of the North Coast Study Region – General Comments

Significant commercial fisheries occur within the study region. Two port complexes (Eureka and Fort Bragg) include several ports that span the three counties of the study region. Major ports include Crescent City, Trinidad, Eureka, King Salmon, Fields Landing, Shelter Cove, Fort Bragg and Albion.

\*\*\*Boats out of Point Arena Harbor, impacted by MLPA closures in the North Central Coast 'Study' Region, through concentration of effort shift are heading north. How is it that Point Arena harbor is not included in the Fort Bragg Port Complex Socioeconomic Analysis?

In the Executive Summary on pg 16 of 185

Both harvest of kelp and aquaculture occur in the study region. Though, none of the administrative kelp beds in the region are currently open to commercial take, harvest of edible seaweeds does occur. Some harvested species include *Postelisa palmeformis*, which was harvested more than any other seaweed from 2002 to 2008, as well as *Laminaria* spp. and *Porphyra* spp. Mendocino county experienced the highest rate of harvest for all species of edible seaweeds during the same period. Aquaculture occurs in the study region within Humboldt Bay.

\*\*\*It's Sea Palm Postelsia Palmeformis not *Postelisa palmeformis*, (Palmaeformis)

## CHAPTER 2

p21-22 of 185 (p10 of Draft by Chapter)

The Del Norte coast at the north end of the study region is characterized by a relatively narrow shelf and a rocky coastline. The Smith River, the largest river system in California that flows freely along its entire course, meets the ocean five miles south of the Oregon border (Quinones and Mulligan 2005).

Although the study region boundary ends at the political border between the states of California and Oregon, neighboring MPAs in southern Oregon could potentially provide habitat for species frequenting the waters of both states, and could supply recruits to MPAs established in the north coast study region. There are four existing MPAs in Oregon state waters from the state border to the Cape Arago area. All four are smaller than the SAT's preferred size guidelines, and three of them only provide protection to the intertidal zone. In addition to the existing MPAs, Oregon is currently undergoing an MPA development process to implement a new set of marine reserves.

\*\*\*Recruits - of what "species that are likely to benefit" and what specific species relative to those proposed in the SAT guidelines and NC Draft Regional Profile (3.2.4) (Appendix D\*), and as presented by SAT member Karina Nielsen, Sonoma State University, Department Of Biology (Rohnert Park) on 121609 in Eureka? The above statement that Oregon would supply recruits is unclear.

## Draft Regional Profile of the North Coast Study Region – General Comments

\*\*\*Dynamic pelagic systems, nearshore species stocks assessment and MPA modeling of genetic dispersal include discussions on both genetic connectivity and diversity dispersal across the matrix between MPA's and seem to be prefaced always by the statements that tend to diminish any actual real ecosystem measurements or improvements to biomass and species stock assessment. Gaps between MPA's only occur in modeling not in Nature. The passive marker of transport and population structures are based on generations by assigning patches to groups, and then calculated by the clustering algorithm used.

The SAT discussion on 121709 near the end of the modeling presentation at the after 2:30 pm **“ALL MODELS ARE HYPERTHETICAL.”** led then on to the statement that “gaps between MPA's cause departure from natural patterns”. Are these considered modeling gaps, spatial ocean distances between actual MPA's, or algorithmic and conceptual gaps in data transmission and monitoring feasibility? Are the “natural patterns” the real thing, or are they the sampled data sets, extrapolated and theorized through the projections of 3 different modeling scenarios?

Oregon MPA considerations state:

From *STAC report to OPAC on Size and Spacing of Marine Reserves Workshop 2008*

**Figure 3. Species that are likely to benefit from reserves of increasing size, based on California species lists.** Each species is categorized by its home range distance according to the typical movements of that species (population density, or the number of individuals that would benefit, is not included). From this process, the California MLPA size guidelines to meet stated goals and objectives were determined to be:

- Minimum alongshore span of 5-10 km (2.7-5.4 nautical miles)
- Preferably 10-20 km (5.4 – 10.8 nm)
- Extend from the intertidal zone to the offshore boundary of state waters (3 miles offshore)

Most of the species listed in these figures and tables are found in Oregon state waters.

### **Marine reserve spacing should be based on larval dispersal**

MPAs should be spaced far enough apart to maximize the length of coastline replenished by larvae produced within MPAs, but close enough together that larvae have the potential to be exported from one to the next...

\*\*\*In how many habitat types of the (Draft) NC Regional Profile are SAT assessments based on calculations of similar habitat types by substrate?

\*\*\* (Re: Species likely to benefit) **How are** cyclic changes in relative biomass or species dispersal patterns for prey of nearshore and pelagic marine predators **addressed** in the currently disputed “Size and Spacing Guidelines” within the scale of the California Current Large Marine Ecosystem (LME) by the three model types? This question refers to that 'relative stability flux' (RSF) of dynamic systems inherent in nature.



The “disputed” conversation around “Size and Spacing Guidelines” I refer to Dr. Ray Hilborn's SAT statement of 100609:

[http://www.cafisheriescoalition.org/video/ray\\_hilborn\\_votes\\_no.wmv](http://www.cafisheriescoalition.org/video/ray_hilborn_votes_no.wmv)

### **\*\*D.1 List of Special-Status Species**

Listed below are species that are protected under state or federal law and occur within the MLPA North Coast Study Region for consideration in marine protected area planning. Some of these species are described in further detail in section 3.2.4 of this regional profile.

\*\*\***(Re: Special Status Species) How are** cyclic changes in relative biomass or species dispersal patterns for prey of nearshore and pelagic marine predators **addressed** in the currently disputed “Size and Spacing Guidelines” within the scale of the California Current Large Marine Ecosystem (LME) by the three model types? This question refers to that 'relative stability flux' (RSF) of dynamic systems inherent in nature.

## **CHAPTER 3.1.2 Intertidal Zones**

p27 of 185 (p10 of Draft by Chapter)

Table 3.1-4 is a summary of the linear length and percentage of total shoreline (approximately 366 miles as measured following the contours of the coastline) for each shore type in the study region based on data from NOAA ESI. The study region is dominated by sandy beaches, followed by salt marshes, sheltered tidal flats, and exposed wave-cut platforms in bedrock, in that order.

### **Sheltered rocky shores 1.80 <1.0%**

p28 of 165 (p11 of Draft by Chapter)

The following rocky shore types have been mapped in the north coast study region by NOAA for the Environmental Sensitivity Index program (2006) (Table 3.1-4).

**Exposed rocky cliff:** Steep intertidal zone (greater than 30 degrees slope) with little width and little sediment accumulation. Strong vertical zonation of intertidal communities. Over one quarter of the rocky shore in the study region is this type.

**Wave-cut rocky platform:** Includes flat rocky bench of variable width with irregular surface and tidepools. Shore may be backed by scarp or bluff with sediments or boulders at base. Some sediment accumulation in pools or crevices. May support rich tidepool and intertidal communities. Over half of the rocky shore in the study region is wave-cut platform.

**Sheltered rocky shore:** Bedrock shores of variable slope (cliffs to ledges) sheltered from wave exposure. These make up roughly two percent of the rocky shore in the study region. Sediment accumulation in pools or crevices. May support rich tidepool and intertidal communities.

\*\*\*How is it that from page 27 to page 28 a whole percentage point of Sheltered Rocky Shore is gained?

### 3.1.3 Estuaries and Lagoons

p30 of 165 (p13 of Draft by Chapter)

Within estuaries and lagoons, the shoreward boundary of the north coast study region was determined by evaluating the extent and presence of mapped salt marsh or brackish vegetation, presence of saltwater species, the known extent of tidal influence, and jurisdictional boundaries.

Estuaries form at the mouths of rivers and streams where freshwater and saltwater meet. Specific characteristics of estuaries vary based on salinity. This salinity may change seasonally and over longer timeframes depending on freshwater inputs and creation or removal of barriers between the estuary and the open coast. Two kinds of estuaries exist within the north coast study region: bodies of water that are permanently or semi-permanently open to the ocean and bodies of water that are seasonally separated from the sea by sand bars. The latter of these types, known as “bar-built estuaries,”

A number of estuaries and lagoons occur along the approximately 225-mile coastline of the north coast study region. The study region contains at least a portion of 22 estuaries and lagoons in the north coast study region, 16 of which are greater than 0.5 square miles in area.

Other relatively large estuaries or lagoons include the Eel River estuary, Lake Earl, Big Lagoon, and the Klamath River estuary.

The aerial extent of estuaries in the entire north coast study region totals 43.0 square miles. The maps of coastal estuaries represent a composite from multiple sources, including the National Wetlands Inventory, California Natural Diversity Database, NOAA-ESI, and topographic maps.

p36 of 185 (p19 of Draft by Chapter)

**Noyo River Estuary:** The Noyo River estuary is located in northern Mendocino County, entering the Pacific Ocean approximately 2 miles south of Fort Bragg.

\*\*\*Perhaps from City Hall or the offices of the City of Fort Bragg, or the Fort Bragg Advocate News building, but Fort Bragg City limits encompass both shores of the Noyo River at it's mouth.

\*\*\*The Noyo is not located in northern Mendocino County! What criteria was used to establish this declaration?

LEK would state that northern Mendocino County starts where Hwy leaves the coast. If the 'Study Region' boundaries were used, which seem more appropriate, then Fort Bragg is closer

to being right in the middle on the Mendocino Coast.

**The Big River estuary** is the largest estuary in Mendocino County, encompassing an area of 0.24 square miles. Unlike some of the other estuaries in Mendocino County, the mouth of the Big River remains connected to the ocean year round. The entire estuary, including extensive mudflats and marsh habitat, covers 1,500 acres and is one of the largest relatively undisturbed estuaries along the California coast (Warrick and Wilcox 1981; LeValley et al. 2004).

\*\*\*A square mile by topographic standards is 640 acres square. If the estuary is 1500 acres square, then doesn't that calculate to more than 2 square miles not .24 square miles?

!!! “The estuary also provides habitat for geese, ducks, and Bald Eagle (LeValley et al. 2004). The Big River is identified as an impaired water body due to concerns related to sedimentation and temperature (CCC 2006). The property's unique natural resources include:

- 1,500 acres of wetlands, including brackish, freshwater, saltwater, and fresh emergent marshes, the **8.3-mile long estuary**, and associated riparian habitats.
- 27 endangered, threatened, or species of concern.
- 60,000 acres of connected wildlife habitat between this and adjacent public land, and over 100 miles of joined trails.
- 50 miles of Big River and its tributaries, home to Dungeness and shore crab, freshwater mussels, ghost shrimp, river otter, beaver, harbor seals, and over 22 fish species including coho and steelhead salmon, bocaccio, starry flounder, Pacific halibut, Pacific herring, eulachon, buffalo and prickly sculpin, and 7 species of surfperch.
- Over 130 bird species recorded to date, including Osprey, Northern Spotted Owl, Golden Eagle, Yellow Warbler, Purple Martin, Vaux's Swift, Yellow-breasted Chat, and Olive-sided and Pacific-slope Flycatchers. Download the Land Trust's [2008 Checklist of Birds Seen at Big River State Park](#) (520 K).
- The longest undeveloped estuary in northern California.
- Significant, untapped archeological resources throughout the Property.
- High diversity of plant communities including Northern Coastal Salt Marsh, Coastal Brackish Marsh, mudflats, Coastal and Valley Freshwater Marsh, Coastal Scrub, riparian forests, Coastal Redwood Forest, Bishop Pine Forest, Grand Fir Forest, Mendocino Pygmy Cypress Forest, Coastal Coniferous Forest, and mixed hardwood/conifer forest, as well as five aquatic plant associations.
- At least 32 mammals including river otter, black bear, beaver, mountain lion, bobcat, mink, ring-tailed cat, long and short tailed weasel, little brown bat, gray fox, harbor seal, and the red tree vole.
- 60-acre Laguna Marsh, an unusual inland and extensive fresh-emergent wetland representing one of the most productive habitats on earth.”

[http://www.mendocinolandtrust.org/?Big\\_River>About\\_Big\\_River](http://www.mendocinolandtrust.org/?Big_River>About_Big_River)

## Draft Regional Profile of the North Coast Study Region – General Comments

\*\*\***(Great Blue Heron and Egret)** don't get mentioned at all throughout the NC Draft Profile. These birds nest in estuaries according to DFG WHIR and CA WHR for the Blue Heron and Egret have been considered in cumulative impacts assessments in all THP's filed in the 'overcut' Big River watershed for decades. These birds also forage on estuarine and coastal waters species of faunal importance listed throughout the (Draft) NC Regional Profile including those likely to benefit from MPA's.

What is the computational weight of their ecosystem service and function in modeling estuarine and nearshore habitats?

### **3.2 Important Regional Species**

*p43 of 185 (p26 of Draft by Chapter)*

This section briefly describes some of the important species in the study region. These include species currently described as depleted or overfished, fished species of interest, and species that receive special protections due to their legal status as protected, threatened, or endangered species. During the course of the north coast study region process, the SAT will develop a regional list of species likely to benefit from MPAs, which will be publicly available as a separate document.

*p43 of 185 (p26 of Draft by Chapter)*

#### **3.2.1**

**The MLPA refers to the term “depleted”** in reference to marine life populations under “Program Goals” in Fish and Game Code (FGC) §2853(b)(2). However, additional definitions of this term exist. The federal Marine Mammal Protection Act (MMPA) has defined “depleted” as follows: “....a species or population stock is below its optimum sustainable population; ... or a species or population stock is listed as an endangered species or a threatened species under the federal Endangered Species Act (ESA)” (16 USC §1362(1)). The equivalent term “depressed” is found in the Marine Life Management Act (FGC §90-99.5) which includes the following definition of a “depressed” fishery: “...the condition of a marine fishery that exhibits declining fish population abundance levels below those consistent with maximum sustainable yield” (FGC, §90.7). Similarly, the Pacific Fishery Management Council defines “overfished” as “Any stock or stock complex whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding.” (PFMC 2008).

!!! **“Productivity** is most commonly measured in studies investigating the relationship between diversity and ecosystem function. In the (Hooper et. al. 2005) review of the literature which provided empirical estimates of productivity, 40 of the 43 studies (93%), use standing biomass or change in biomass as an estimate of productivity. In only one study was the use of biomass as a proxy measure used (Downing and Leibold 2002). Biomass and productivity are reported at very large scales.”

\*\*\*What is the criteria for data acquisition and applications of scale between specific species biomass and specific productivity? Productivity and Maximum Sustained Yield models are typically made at smaller scales and then scaled up, while ecosystem function models are scaled

## Draft Regional Profile of the North Coast Study Region – General Comments

closer to the scale of habitat types and species life stages. There are a number of variables in between; changes in environment, crosswalk algorithms, monitoring, culture and more.

*Literature cited:* Measuring Ecosystem Function: Consequences Arising From Variation In Biomass-Productivity Relationships – Community Ecology DOI 101556 2008

C. P. terHost, P. Munguia

*p45 of 185 (p29 of Draft by Chapter)*

**In 2008, approximately 66,200** Sacramento River fall Chinook adults returned to spawn in the Sacramento River Basin. This is the lowest return of Sacramento River fall Chinook on record and is well below the annual conservation objective of 122,000-180,000 adult spawners required by the PPMC's Salmon Fishery Management Plan.

!!! “The Klamath fish kill of September 2002, when 68,000 salmon died because of low, warm water conditions on the lower river, is considered the largest of its kind in U.S. history, another “hidden fish kill” took place on the American River in the fall of 2001, 2002 and 2003.”

“Thirty-seven percent of the run of 2003 - 58,651 fish out of 158,516 fish - died before spawning in the 22 miles of the river below Nimbus Dam in the fall of 2003. The vast majority of the total run, 147,103 fish, were natural spawners, according to Mile Healy, associate fishery biologist for the California Department of Fish and Game, who coordinated a crew of workers to count and record the carcasses on the river during the annual post-spawning carcass survey. Huge die-offs of salmon before spawning also occurred in 2002 and 2001. The 2002 run lost 30 percent of the run, 35,432 fish before spawning. The 2001 run was the worst of all, with 87,626 fish perishing (67 percent) perishing before spawning. “

<http://www.fishsniffer.com/dbachere/040813amerfishkill.html>

!!! “The population collapse has been caused by record state and federal water exports from the Sacramento-San Joaquin River Delta, the West Coast's largest and most significant estuary, since 2001. For example, State Water Project exports increased from 1.8 million acre feet of water in the 1990's to 3.7 million acre feet of water in 2006, according to Bill Jennings, executive director of the California Sportfishing Protection Alliance.”

<http://www.fishsniffer.com/dbachere/071216fallsurvey.html>

!!! Judge Orders More Water for Vanishing Fish in Sacramento Delta

*Delta smelt, other delta species, are in sharp decline*

**September 4, 2007**

**Fresno, CA** - Responding to a lawsuit brought by conservation organizations, and following a hearing that lasted two weeks, Judge Oliver Wanger of the federal district court in Fresno has ordered that flows of water through the Sacramento-San Joaquin River Delta in California be

## Draft Regional Profile of the North Coast Study Region – General Comments

increased between December 2007 and June 2008 in order to help the delta smelt, a federally protected species found only in the delta, recover from its currently imperiled state. Though it was the most abundant fish in the delta as recently as 30 years ago, fish biologists agree that the smelt is presently on the brink of extinction, due in part to massive exports of water from the Delta by federal and state water projects.

<http://www.earthjustice.org/news/press/007/judge-orders-more-water-for-vanishing-fish-in-sacramento-delta.html>

!!! “The state Department of Water Resources, the agency responsible for operating the pumps that push water out of the delta over a mountain and into an aqueduct where it’s destined for 750,000 acres of agriculture and 23 million faucets.”

“No habitat exists downstream of the pumps, just a 444-mile-long cement channel and a reservoir that satiates Southern California’s thirst. So the state attempts to screen out marine life, with limited success. Billions of gallons of water pass through the Skinner Fish Protective Facility each day. Inside that warehouse, a 24-hour crew regularly hauls up a net to see what marine life they’ve sucked in. They index their catch and truck the fish upstream and dump them back out into the delta.”

[http://www.voiceofsandiego.org/news/article\\_61ecc413-0f80-51ca-9412-a9a4c77e06e0.html](http://www.voiceofsandiego.org/news/article_61ecc413-0f80-51ca-9412-a9a4c77e06e0.html)

!!! “Losses of Sacramento River Chinook Salmon and Delta Smelt to Entrainment in Water Diversions in the Sacramento-San Joaquin Delta”

<http://escholarship.org/uc/item/7v92h6fs;jsessionid=4DD4F453085C8BC82CEC479BAF21E7C6>

### **Title:**

Losses of Sacramento River Chinook Salmon and Delta Smelt to Entrainment in Water Diversions in the Sacramento-San Joaquin Delta

**Journal Issue:** San Francisco Estuary and Watershed Science, 6(2)

**Author:** Kimmerer, Wim J.

**Publication Date:** 06-05-2008

### **Publication Info:**

UC Davis, San Francisco Estuary and Watershed Science, John Muir Institute of Environment

### **Permalink:**

<http://escholarship.org/uc/item/7v92h6fs>

### **Citation:**

Kimmerer, Wim J.(2008). Losses of Sacramento River Chinook Salmon and Delta Smelt to Entrainment in Water Diversions in the Sacramento-San Joaquin Delta. San Francisco Estuary and Watershed Science, 6(2). Retrieved from: <http://escholarship.org/uc/item/7v92h6fs>

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“Pumping at the water export facilities in the southern Sacramento-San Joaquin Delta kills fish at and near the associated fish-salvage facilities. Correlative analyses of salvage counts with population indices have failed to provide quantitative estimates of the magnitude of this mortality. I estimated the proportional losses of Sacramento River Chinook salmon (*Oncorhynchus tshawytscha*) and delta smelt (*Hypomesus transpacificus*) to place these losses in a population context. The estimate for salmon was based on recoveries of tagged smolts released in the upper Sacramento River basin, and recovered at the fish-salvage facilities in the south Delta and in a trawling program in the western Delta. The proportion of fish salvaged increased with export flow, with a mean value around 10% at the highest export flows recorded. Mortality was around 10% if pre-salvage losses were about 80%, but this value is nearly unconstrained. Losses of adult delta smelt in winter and young delta smelt in spring were estimated from salvage data (adults) corrected for estimated presalvage survival, or from trawl data in the southern Delta (young).”

“These losses were divided by population size and accumulated over the respective seasons. Losses of adult delta smelt were 1–50% (median 15%), although the highest value may have been biased upward. Daily losses of larvae and juveniles were 0–8%, and seasonal losses accumulated were 0–25% (median 13%). The effect of these losses on population abundance was obscured by subsequent 50-fold variability in survival from summer to fall.”

“In this paper I estimate the effects of export pumping in terms of proportional losses of two fish species. Chinook salmon (*Oncorhynchus tshawytscha*) and the threatened delta smelt (*Hypomesus transpacificus*) are target taxa for restoration and management in the Delta. Data for several races of Chinook salmon are available to estimate the losses of these fish to direct effects of entrainment. I focus on winter Chinook because it has been the target of considerable restoration effort, although data for other races are used to provide greater resolution. Two life stages of delta smelt are examined: adults in late winter, and larvae and juveniles in spring. Effects of export pumping are estimated mechanistically, rather than through correlative analyses with the respective population abundances.”

“The conceptual framework for these calculations differs for the two species. Young Chinook salmon are exposed to export effects during movement through the Delta. Data on length distributions at the export facilities and in field studies suggest that juvenile Chinook generally are exposed to entrainment only during movement, and are rarely entrained while rearing. Young Chinook rear in or migrate through the Delta at various times of year but are most abundant in the Delta from March through June (Williams 2006). Although most of the migrating fish are small fall-run Chinook, winter Chinook and other runs form a substantial pulse of fish larger than the fall run in February–March (Williams 2006). Chinook smolts may take any of several pathways that lead them through the Delta either to the export facilities or through the western margin of the Delta at Chipps Island, and then to sea (Figure 1). When control gates in the Delta Cross-Channel (Figure 1) are open, the smolts may enter the central Delta further upstream, and this could increase their probability of entrainment in the export facilities.”



*!!! Peer Reviewed*

**Title:**

Central Valley Salmon: A Perspective on Chinook and Steelhead in the Central Valley of California

**Journal Issue:** [San Francisco Estuary and Watershed Science, 4\(3\)](#)

**Author:** [Williams, John G.](#)

**Publication Date:** 12-05-2006

**Publication Info:**

UC Davis, San Francisco Estuary and Watershed Science, John Muir Institute of the Environment

<http://escholarship.org/uc/item/21v9x1t7>

**Citation:**

Williams, John G.(2006). Central Valley Salmon: A Perspective on Chinook and Steelhead in the Central Valley of California. San Francisco Estuary and Watershed Science, 4(3), . Retrieved from: <http://escholarship.org/uc/item/21v9x1t7>

“Fall-run fry emerge from December into April, depending on the date of spawning and water temperature during incubation, and exhibit two main life-history patterns. Most begin migrating as fry, shortly after emergence (Rutter 1904, Hatton 1940), and most of these apparently rear for one to three months in the Delta before moving into the bays (ch 5). However, some continue directly through Carquinez Strait into San Pablo Bay (Hatton 1940). Analogous groups in Puget Sound have recently been described as “delta users” and “fry migrants” (Greene and Beechie 2004). Of the Chinook that do not leave the gravel-bed reaches as fry, most do so as parr or silvery parr by May or early June, before the lower rivers become intolerably warm, and pass fairly quickly through the Delta. These larger migrants are sometimes called “fingerlings” or “90-day Chinook” or “smolts,” although few of them develop the full suite of developmental characteristics of smolts while they are still in the rivers (ch 5). The relative contributions of fry and pre-smolt migrants to returns are not known, although there is good evidence that the survival of the larger migrants is much higher (ch 10).”

“The thermal inertia of water in reservoirs dampens the annual cycle in the thermal regime in the rivers downstream, so that water in most remaining spawning habitat in the Central Valley is now warmer in the winter than it was historically. This affects the duration of incubation, such that fry emerge earlier (Moffett 1949), and the migration of fall-run fry down the Sacramento River now begins about a month earlier than indicated by data collected before the construction of Shasta Dam (ch 5). The consequences of the change in timing are unknown, but could be significant.”



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“Fall and spring Chinook spawn when water temperatures are decreasing, however, and there is evidence that their eggs are more tolerant of warm water shortly after fertilization than they are later. Eggs exposed to water temperatures that tracked the temperature of the Columbia River, plus a 2.5 °C increment, showed no effect of an initial exposure to 16.1 °C (Olson and Foster 1957). This suggests, for example, that Chinook in the American River that begin to spawn when temperatures reach about 15 °C (Williams 2001a) may experience no ill effects, provided that normal seasonal cooling occurs. Chinook eggs exposed to warmer water at fertilization apparently survive better than eggs reared at a uniformly low temperature (Combs 1965, cited in McNeil 1969).”

“Juvenile Chinook at sea eat mainly larval and juvenile fishes, but they also eat plankton, especially euphausiids, and even terrestrial insects that have blown offshore (Snyder 1924b; Healey 1991; MacFarlane and Norton 2002). Juvenile Chinook can be voracious eaters, as indicated by Snyder’s (1924) description of fish taken off Half Moon Bay. Less is known about the diet of small steelhead in the ocean, but based on a sample 134 collected north of Cape Blanco reported by Percy et al. (1990), it is similar to that reported for small Chinook, except that euphausiids may be more important in the diet of steelhead.”

### **Later ocean life**

“Information on the spatial distribution of the landings of sub-adult Central Valley Chinook from commercial and sport harvest is available from the PFMCC, although recent data are affected by restrictions on harvest. Most are between the Columbia River to the north and Monterey Bay to the south. Point Conception probably marks the southern extent of their range, and only a few go north beyond Washington (Myers et al. 1998, Table 11-1).”

“It seems likely that ocean conditions influence the distribution of Chinook in the ocean, and that before harvest restrictions this was reflected in the distribution harvest, or rather, in the delivery of fish to ports. However, I have not found studies that deal with this issue. More specific information on the location of harvest probably could be obtained by fishers, following the example of Healey and Groot (1987), but again I have not found such studies for California Chinook. At a crude level, however, the data in Table 11-1 indicate that winter-run Chinook tend to have a more southerly distribution, while late fall Chinook may be more likely to venture as far as British Columbia. Temperature and depth preference  
Data from 25 archival tags recovered from large subadult Chinook show that they usually occupy habitat where the water temperature is between 8 and 12°C, and they occupy deeper water in the winter, often deeper than 200 m, and shallower habitat in late spring and early summer (Hinke et al. 2005a,b).”

### **Growth in the ocean**

“Chinook and steelhead grow rapidly in the ocean, but strong variation in the size at age of spawning fish, discussed in the next chapter, implies that there must also be strong variation in growth rates at sea, both within and among years. Growth is seasonal for Chinook, with little growth in winter (Healey 1991), at least at higher latitudes, and the apparent growth rate

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declines with age, at least in part because more rapidly growing fish tend to mature early.”

“There is little information on the ocean growth rate of Central Valley steelhead, except what can be inferred from their size and age at Chipps Island (Fig 5-43) and at return (Table 6-5).”

### **Sub-adult diet**

“The diet of larger sub-adult Chinook off the California coast of California and elsewhere has been described in various papers reviewed by Healey (1991) and Hunt et al. (1999). Generally, subadult Chinook are opportunistic foragers that eat mostly small fish and squid, but they eat plankton as well, especially euphausiids and larval crabs. What fishes are eaten apparently depends on what is available (Healey 1991). Thus, the quantity and quality of the food available probably matters more than the particular species.”

“**Foraging opportunities** in the ocean are not static, and are not beyond management influence. For example, early studies reported that sardines were important prey for Chinook (Healey 1991). Sardines were abundant early in the twentieth century, as illustrated by the distribution of sardine catches in Monterey Bay in 1921-22 (Figure 11-2), about the time that Clark (1928) was collecting salmon scales for his analysis of life history patterns and length at age. By mid-century the sardine population crashed, but in recent decades their abundance has increased again. To the extent that humans prey on the same fishes as Chinook, we are competing with them as well as preying on them.”

\*\*\*What substantiating evidence or science, was evaluated to differentiate language used to describe impacts by humans, our role in ecosystem function and services, and place-based cultural relationships? It was decided in 2005 by Urgoretz that words like “harvest” would be changed to “extraction”. Quoting -

!!! To: Members, MLPA Blue Ribbon Task Force

From: John Kirlin, Executive Director, MLPA Initiative

Subject: Major comments on the revised draft master plan framework, responses and outstanding issues Date: April 10, 2005

Use .extractive. and .nonextractive . & .consumptive. and .nonconsumptive to describe impacts by humans.

\*\*\*Yet marine mammal consumption of fish is not considered an impact *per se*. Nor are methods of scientific study that kill Marine Life such as Blue Whales.

*p56 of 185 (p39 of Draft by Chapter)*

### ***Pinnipeds***

At least four species of pinniped occur within the north coast study region. Steller sea lion, northern elephant seal, and California sea lion are historically known to migrate along the coast of northern California (Griswold 1985). In addition to these, harbor seal is common

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along the coast and in bays throughout the study region. While populations of northern elephant seals, California sea lions and harbor seals have increased steadily during the second half of the 1900s, Steller sea lion populations are on the decline (Steward 1997; NOAA 2009).

**California Sea Lion:** California sea lions (*Zalophus californianus*) are found from British Columbia to Mexico, but is not as common on the north coast as it is south of San Francisco Bay (Daugherty 1979). See Habitat Atlas for haulout sites in the north coast study region.

**Steller Sea Lion:** The Steller sea lion (*Eumetopias jubatus*) is the only pinniped in the north coast study region on DFG's list of Special Animals (DFG 2009a). Steller sea lion in California are part of the eastern distinct population segment (DPS), which extends from southeast Alaska and British Columbia to California. Sugarloaf Island and Cape Mendocino on the north coast are known to provide essential habitat to eastern DPS as rookery locales (NOAA 2009). Steller sea lions also are known to visit several north coast locations, such as Klamath River mouth, Trinidad Head and Smith River estuary (Monroe et al. 1975) (also refer to Habitat Atlas for known haulout sites in the study region). Steller sea lion populations are known to fluctuate with abundances of Pacific herring (*Clupeidae*) (Sigler and Csepp 2007).

*p67 of 185 (p50 of Draft by Chapter)*

**Shorebirds and waterfowl**, such as *Black-bellied Plover*, *Marbled Godwit*, *Long-billed Curlew*, *Ruddy Duck*, *Brant*, and *Canada Goose*, in addition to special-status species such as *Western Snowy Plover* inhabit coastal lagoons, estuaries, and salt marshes as well as areas near sandy beaches. Large numbers of shorebirds and diving ducks are attracted to eelgrass beds, where they feed on the eelgrass, fish, and invertebrate eggs and young. Many bird species use salt marshes, shallow intertidal flats, and lagoons during their annual migrations. The estuaries, bays and sandy beaches of coastal California form part of the Pacific Flyway, one of the four principal bird migration routes in North America.

**Marine mammals**, such as *California sea lions*, *Stellar sea lions*, *northern elephant seals*, and harbor seals, have many haulout sites, as well as a few rookeries, on secluded rocks and sand beaches, tidal flats, and estuaries in the region.

\*\*\*What is the relative consumption level "" and is this entered into the modeling?

*p71 of 185 (p54 of Draft by Chapter)*

### **Ports, Harbors, Marinas and Associated Vessels**

Marinas and other embayments, along with associated vessels, can have adverse impacts on water quality, as most pollutants are directly discharged into the water (SWRCB 2008). In the north coast study region, recreational boating is an important activity with social and economic benefits, and pleasure boats make up 97% of the vessels in the study region (CADMV 2008, Rust and Potepan 1997).

\*\*\*Can that be broken down by Harbor District or Port? Does the term 'recreational boating'

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here include 'recreational fishing'? Does it include recreational fishing from a recreational boat? Is kayaking considered to be recreational boating? Rust and Potepan 1997 deals with southern California not northern California.

### **!!! California Current Ecosystem-Based Management (CCEBM) initiative:**

Advancing the Science for Ecosystem-Based Management on the U.S. West Coast  
January 30-31 2008, Santa Cruz CA

### **!!! The Goal of EBM:**

**The goal of EBM is to ensure the long-term provision of the ecosystem services that humans want and need. Furthermore, it is now widely recognized that the continued delivery of these services depends on healthy, productive and resilient ecosystems.**

“As a result, a focus on ecosystem services rather than on EBM *per se* allows us to manage in a way that optimizes the delivery of multiple services, not just within a single sector, but across sectors. It also reveals a need to develop new approaches and improve existing methods for mapping and valuing services under different management scenarios, and for evaluating tradeoffs among different services. These tools provide a basis for communicating the value of ecosystem services so that management can initiate an EBM approach.”

“An Integrated Ecosystem Assessment (IEA), under development by NOAA, is a formal synthesis and quantitative analysis of information about natural and socio-economic factors in relation to specified ecosystem management goals within a defined region. It involves and informs citizens, industry representatives, scientists, resource managers, and policy makers through formal processes and is defined by four key steps: scoping, indicator development, risk assessment, and management strategy evaluation.”

“A method under development by the CCEBM Science Advisory Committee, Science to Inform Ecosystem Service Trade-off Analysis (SIESTA), is an approach for achieving the management strategy evaluation step of the IEA. SIESTA is a means for defining and visualizing the relationship and potential trade-offs among the delivery of key ecosystem services. SIESTA is not a model, but rather a heuristic tool that reveals acceptable versus poor management options and opportunities for improving our ability to both protect and procure services from the ecosystem.”

### **Is focusing on ecosystem services too anthropocentric?**

“A focus on ecosystem services suggests an emphasis on the benefits that humans receive from a functioning ecosystem, rather than on the intrinsic importance of the ecosystem or its importance to other species. Some argue this perspective is too anthropocentric and ignores important ecosystem attributes that are difficult to quantify and value. Others assert that ecosystem services are an effective basis for EBM, as this focus acknowledges the connections between human and natural systems, is useful for conveying these ideas to the general public

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and that the intrinsic value of an ecosystem can be quantified and incorporated into analyses of ecosystem service tradeoffs.”

“Taken together, these views suggest an inherent challenge of EBM: how to acknowledge and balance the social and ecological components of the ecosystem. This careful balance is not only possible, but essential, and requires that we do not limit our focus on ecosystem services to those with market value.”

“While there are important scientific advances enabling improved marine management, and important scientific limitations that must be addressed with new research agendas, we should not be discussing science in a “vacuum”. There will be a need for a “procedural map” for how to apply science to EBM in the real world.”

<http://ims.ucsc.edu/ccebm>

\*\*\*What is the 'procedural map' (EBM) within the context of MPA designation by the MLPAi?

\*\*\*On the CCEBM Steering Committee is Margaret Caldwell – Stanford University;  
How does the **Atlantis ecosystem model** for the California Current authored by Isaac Kaplan influence the MLPA process and monitoring assessments of MPA's?

!!! Current Applications of US West Coast Atlantis Model are -

1. Testing ecological indicators
2. Setting federal (Sanctuary and Fishery Council) management in the ecosystem context (including state MPAs)
3. Evaluating effects of Individual Transferable Quotas (ITQs) In the future, we will use Atlantis to evaluate management strategies within Integrated Ecosystem Assessments.

**CCEBM Project 1: Indicators of Fishing Impacts** (Kaplan and Levin in press)

For fished species, remove a fixed amount of biomass annually from standing stock.

**After 25 years, examine changes in ecosystem structure.**

\*\*\*What indicators reveal this change?

\*\*\*How will this 25 year science parameter affect consideration of MPA closures to be re-opened to extractive uses? Please explain item #2, this may include a foray into interactions between federal (NMS, Council) and state (MLPA, MLMA) management.

*Appendix A: Spatial Data Layers Available*

*p167 begins (p148 of Draft by Chapter)*

\*\*\*Throughout Appendix A – why are neither the Blue Heron or Egret listed?

## Appendix D: Special-Status Species Likely to Occur in the Study Region

*p181 of 185 (p163 of Draft by Chapter)*

### *D.1 List of Special-Status Species*

Listed below are species that are protected under state or federal law and occur within the MLPA North Coast Study Region for consideration in marine protected area planning. Some of these species are described in further detail in section 3.2.4 of this regional profile.

Table D-1: Special-status species likely to occur in northern California

\*\*\*Throughout Appendix D – why are neither the Blue Heron or Egret listed?

!!! From CDF&G Species BioGeoData WHIR and WHR

<http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>

“The Great Blue Heron is a predator in shallow water on coastlines and in freshwater regions. It is adept at locating fish that it snatches from the water with its bill. Herons will eat just about any animal it can swallow although fish are its mainstay. Small mammals, reptiles, amphibians, and insects are included in the diet. The heron is adaptable in its choice of feeding site - backyard ornamental ponds and fish rearing ponds included.”

“The Great Blue Heron is the largest heron in North America weighing about 2 to 2.5 kilograms. The sexes are indistinguishable by plumage but most males are 5-15% larger than females for most measures.”

### SPECIFIC HABITAT REQUIREMENTS

“Feeding: Nearly 75% of the diet is fish, mostly species not sought by humans (Cogswell 1977); also eats small rodents, amphibians, snakes, lizards, insects, crustaceans, and occasionally small birds. Stands motionless, or walks slowly, when searching for prey in shallow water (less than 30 cm; 12 in) or, less commonly, in open fields.”

“Life history accounts for species in the California Wildlife Habitat Relationships (CWHR) System were originally published in: Zeiner, D.C., W.F.Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1988-1990. California's Wildlife. Vol. I-III. California DFG, Sacramento, California. The bills of males of the Pacific Great Blue Heron (*A. h. fannini*) in British Columbia range between 129 and 146 millimetres and females range from 112 to 131 millimetres. Plumages are a useful clue to the age of herons. Adults have white crown feathers and a jet black eye stripe that extends behind the head into a plume. There is much variation in facial markings of adults and it might be a useful identification feature of individuals. The bill is long and pointed. For most of the year, the upper mandible is a slate grey colour and the lower mandible is yellow-orange. However, during copulation and egg laying, the upper bill becomes noticeably brighter

yellow-orange. This feature is a useful clue to the breeding state of individual herons.”

“Female herons lay 3 to 5 eggs on average with smaller clutches in the south and larger ones in the north. Eggs are laid in March or April at the northern edge of the range in British Columbia and Alberta and in January and February in northern California. In Florida, eggs are laid at all times of the year with most of the breeding occurring in the autumn and late winter. Eggs are pale blue in colour and measure about 50 to 76 millimetres in length and 29 to 51 millimetres in breadth. A freshly laid egg weighs about 71 grams. Both members of the pair incubate the eggs for about 26 or 27 days. Incubation begins shortly after the first egg is laid so that the clutch hatches asynchronously. Each incubation bout lasts several hours interspersed with bouts of egg turning every few hours. A hatched chick weighs about 50 grams.”

“Herons can live for 18 years in the wild but most adults probably live for about 10 years.”

“Young herons have a much high mortality rate than adults. About half the eggs laid become fledged chicks. There are few data on how many juveniles survive their first year but it is likely about 20%.”

Also:

<http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>

The Great Egret is a common yearlong resident throughout California.

#### SPECIFIC HABITAT REQUIREMENTS

“Feeding: Feeds in shallow water and along shores of estuaries, lakes, ditches, and slow-moving streams, in salt ponds and mudflats, and in irrigated croplands and pastures. Eats mainly fishes, amphibians, snakes, snails, crustaceans, insects, and small mammals (Palmer 1962). Stands motionless or stalks slowly, then rapidly strikes prey with bill (Kushlan 1976a).”

**A wide range of seabirds also prey** heavily on juvenile rockfish (Chu 1984; Wiens and Scott 1975). For many species, as much as 90 percent of their diet comprises juvenile rockfish during the late spring and early summer, which coincides with the breeding season for many resident species (Ainley, *et al.* 1993; Miller and Sydeman 2004).

\*\*\*Where are the data layers for the transfer of food web ecological energetics by tropic level or singular and multi level predator associations and changes in biomass assessment models account for compensatory impacts to life stage survival of ecosystem species of prey by natural predator?

!!! **Cited Literature:** WEST COAST MARINE ECOSYSTEMS AND ESSENTIAL FISH HABITAT Oct 2006

As seabirds have a success-failure breeding response, rather than a response proportional to food supply, there is a potential for seabird populations to be highly sensitive to changes in

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food abundance (Furness and M.L.Tasker 2000; MacCall 1984; Sydeman, *et al.* 2001). Particularly true for seabirds in which juvenile rockfish have been shown to be a preferred prey item.

**Citing abundance trends** over the last several decades, it seems unlikely that the depletion of overfished rockfish or any alteration to their expected recovery trajectories that might result from management decisions would have a negative impact on marine mammals. However, the converse situation, in which increasing marine mammal populations might slow or prevent the recovery of rebuilding species (a depensatory impact), may be plausible factors, which are known as depensatory processes that could complicate recovery efforts for some species, are difficult to quantify, and consequently are not explicitly considered in the analysis of rebuilding trajectories. However, since most rockfish are characterized by low growth, low metabolic rates, and low natural mortality rates, they are likely to be less tightly coupled with the dynamics of either their predators or their prey over most temporal and spatial scales.

An alternative to bottom-up control is “middle-out” control, also referred to as “wasp-waist” control, in which a small number of key mid-trophic level species represent a bottleneck of energy flow between lower and higher trophic levels. It has long been noted that food webs in coastal upwelling ecosystems tend to be structured around CPS, such as krill, sardine, anchovy, and hake, that exhibit boom-bust cycles of abundance over decadal time scales (Bakun 1996; Parrish, *et al.* 1981; Schwartzlose, *et al.* 1999). Such dynamics have long been thought to be a consequence of the energetic and highly variable oceanographic processes that shape the physical environment and drive production throughout pelagic and benthic food webs in coastal upwelling ecosystems (such as the California Current system) over a range of time scales (Mann and Lazier 1996; Parrish, *et al.* 1981).

The idea of wasp-waist control was first suggested by Rice (1995) and developed in greater detail in Cury *et al.* (2000). The premise is that the low species diversity often observed in the middle of many upwelling ecosystems results in a vast majority of the energy in the food web flowing through CPS such as sardine, anchovy, and mackerel. Many of these seem to feature “weak links” in their life cycles related to sensitivity to climate forcing, such that climate conditions determine the productivity of these stocks, and indirectly drive the dynamics of both higher and lower trophic levels.

\*\*\*The ecology of kelp forests (giant kelp, *Macrocystis*) figures prominently in the Regional Profiles of previous 'study regions'. But little of that ecology applies to the North Coast nearshore and tidal waters dominance of bull kelp (*Nereocystis*). Per the premise above, how are the ecological energetics different?

Respectfully submitted by  
Tomas DiFiore



## Draft Regional Profile of the North Coast Study Region – Indigenous Rights Comments

**The California Marine Life Protection Act (MLPA) Initiative** has produced the Draft Regional Profile of the North Coast Study Region (Alder Creek near Point Arena in Mendocino County to the California-Oregon Border), ... as part of a joint fact-finding effort, communities and members of the public are invited to review the draft regional profile and provide suggestions for how to improve the document.

### Comments Specific to the 1st printed edition, December 2, 2009.

To:

California Marine Life Protection Act Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311 Sacramento, CA 95814  
<http://www.dfg.ca.gov/mlpa>  
[MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov)

From:

Tomas DiFiore  
POB 612 Little River  
CA 95456-0612  
Member - Albion Harbor Regional Alliance

All comments follow prescribed format of:

“Comments are most helpful if they are provided as a bulleted list, with page numbers and paragraphs identifying specific portions of the document. Additionally, suggestions are welcome for new sources of information that may be referenced in the revised version of the document. Comments will be incorporated to the extent possible and a revised version of the regional profile will be produced as an additional resource for developing marine protected area proposals.”

Comments begin with

- 1) page numbers and paragraphs,
- 2) paragraph or charts are quoted or referenced,
- 3) concerns, questions and comments are led by three asterisks (\*\*\*) and may be interspersed between sourced data for connectivity of concern (“suggestions are welcome for new sources of information”) and begin with (!!!).

While this may seem a long way around to a point, the NC Draft Regional Profile is scattered in it's organizational structure and distant relevant sections regarding the very same ecosystem components are portioned throughout the document. In this document, Live links will also be incorporated into these comments occasionally as all MPA, MLPA, and MLPAl data and outreach is facilitated through the digital medium including the Proposals use of MarineMap and Google Earth. Links are active going to related audio, video, PDF, document, digital file types or media.

Re:

### 5.2.1 Native American Resource Use

Some Native American people have indicated that they are an intrinsic part of the ecosystem, as expressed in their interactions with the land, the ocean, and the various resources and animals (Egash 2002). Traditional ecological knowledge has enabled Indigenous Peoples to live off the land for thousands of years, with minimal environmental consequences (Anderson 2006; Heizer and Elsasser 1980). There are many cultural uses of the coast and ocean waters by Indigenous Peoples in California that can be consumptive and non-consumptive. Consumptive uses may be subsistence or ceremonially based, for example. Non-consumptive examples may include use of the viewshed from a particular place for spiritual purposes, and resources needed in creating regalia used for ceremony. Thus, these cultural uses are not recreational or commercial, although commercial fishing does occur. Additionally, specific areas are identified for certain resources and/or uses by a given family, Tribe or group of Tribes, and some maintain that they have aboriginal rights in these areas. Therefore, some Native American people assert that restrictions for these uses cannot be designated in those cultural use areas, often referred to as Traditional Cultural Properties (Rocha, pers. Comm. 2009).

Indigenous Peoples depend upon the rich diversity of marine and coastal plant resources as part of their daily lives..

Federally-recognized Native American Tribes are recognized as separate and independent sovereign nations within the territorial boundaries of the United States by the Federal Government.

!!! There is no mention of Tribes without Federal Recognition. Indigenous and Tribal Rights as mentioned above in the same chapter 5.2.1 of the NC Draft Regional Profile - "Indigenous Peoples depend upon the rich diversity of marine and coastal plant resources as part of their daily lives." "Thus, these cultural uses are not recreational or commercial, although commercial fishing does occur." And what matters here is that the Native Indigenous People of Mendocino County receive the same validation for cultural practices, whether federally recognized or not. Access to "cultural uses and associated areas" is of utmost importance as the NCC 'Study' Region has already impacted the Kashia Band of Pomo within Sonoma and Mendocino County?

\*\*\*What previous direction (over MPA designations and tribal resource use amounts and method of harvest, uses) has the SAT been instructed with in communications with the BRTF or Ken Wiseman and the I Team? Audio from the 062309 Fort Bragg I Team Ecotrust presentation clearly has Ken Wiseman stating that the I Team met with "Tribes up north yesterday" (062209). <http://albionharbor.org/mlpafb/sovereigntyhold.mp3>

\*\*\*In defense of this assertion by Tribes and family members and descendants of Tribes throughout California who may travel to the California Coast or live on the coast and harvest

## Draft Regional Profile of the North Coast Study Region – Indigenous Rights Comments

and fish, participate in cultural ceremonies, community food gathering, celebrations, and living with place-based TEK and tradition; the following is offered for consideration into SAT discussions per 121609 Eureka regarding such.

- Tribes promulgate and administer their own laws and operate under their own Constitutions.
- Moreover, tribal membership is determined by the governing tribal law and as such, being classified as “Indian” due to your acceptance to a roll of a federally-recognized Tribe means this classification is not racial, but rather citizenship-based, thus making it a political classification. Tribal governments may include a single or many members from varying Tribal groups. Tribes in California have varying types of lands identified as Indian Country<sup>2</sup>, including Reservation, Rancheria, dependent Indian communities<sup>3</sup>, and allotments. Currently, there are 109 federally-recognized Native American Tribes in California, 20 of which lie within the three coastal counties of the north coast study region (Rocha, pers. comm. 2009). In addition, there are several tribes petitioning for federal recognition.

### Del Norte County

Tolowa Tribe of the Smith River Rancheria

Elk Valley Rancheria

Yurok Tribe (majority of Reservation lands span Humboldt County)

Resighini Rancheria

### Humboldt County

Big Lagoon Rancheria

Blue Lake Rancheria

Cher-Ae Heights Indian Community of the Trinidad Rancheria

Bear River Band of the Rohnerville Rancheria

Wiyot Tribe

Hoopa Valley Tribe

### !!! *Mendocino County*

Round Valley Indian Tribes of the Round Valley Reservation

- Congress has defined the term “Indian Country” as including a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, . . . (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments . . . . Source:

<http://library.law.emory.edu/1circuit/july96/95-1944.01a.html>

## Draft Regional Profile of the North Coast Study Region – Indigenous Rights Comments

- "[D]ependent Indian communities" refers to a limited category of Indian lands that are neither reservations nor allotments (the other categories of Indian country set forth in Sec. 1151), and that satisfy two requirements, first, they must have been set aside by the Federal Government for the use of the Indians as Indian land; second, they must be under federal superintendence. Source:

[http://www.citizensalliance.org/Major%20Issues/General%20Legal%20Issues/def\\_indian\\_country.htm](http://www.citizensalliance.org/Major%20Issues/General%20Legal%20Issues/def_indian_country.htm)

Each of these Tribes are distinct political entities and each have various areas they identify for subsistence, cultural, and ceremonial purposes, as well as to a lesser extent recreational and commercial uses of the coast and ocean waters within those lands they identify an ancestral, cultural, and/or Tribal connection. Each Tribe individually has a government-to-government relationship with the federal government. There are also federally-obligated Trust Responsibilities that are multi-faceted.

**Mendocino County** considers whether any action would threaten the Tribes' political integrity, economic activity, or health and welfare.

While the history of the relationship between the County and the Native tribes in Mendocino County, as of Native American tribes in the United States as a whole, is far too complex to be distilled here, there are a number of factors that recur frequently enough that we believe a short summary may assist the Commission.

As explained in the "Factual Background" portion of opinion no. 95-1065, rancherias were created by the United States government during the early years of the twentieth century with the intent to provide homes for homeless Indians who had been displaced by European settlement during the nineteenth century.<sup>1</sup> Rancheria land was held as "trust land," which meant that members of a given tribe had the right to live on the land (including being assigned a specific area on which to build a dwelling and/or farm) but could not to sell it or devise it to descendants.

Beginning in the late 1950s, and continuing into the 1960s, Congress attempted to divest itself of such trust property in an effort to "integrate" tribal members into non-Indian society. The laws passed by Congress provided that the land was to pass to non-members in fee under state law. In some cases, because this land was subject to local law for the first time, the tribal members ended up defaulting on the taxes entirely, and many lost some of the parcels through tax sales or because economic hardship forced them to sell their holdings.

Then, beginning in the 1970s, lawsuits were filed in federal courts challenged the validity of the earlier "integration" laws, because the government agencies responsible for administering the former trust territory failed to comply with requirements to provide housing and infrastructure,

## Draft Regional Profile of the North Coast Study Region – Indigenous Rights Comments

such as water systems that would allow the “former” tribal members to make the transition away from trust status.

In general, the federal courts agreed with these challenges. Two of those cases in Mendocino County, *Tillie Hardwick v. United States* and *Roger Smith v. United States* led to the re-establishment of the former Pinoleville and Hopland Rancherias, respectively, within their historic boundaries. The judgments provided that the tribal territory was to be treated by the County of Mendocino as any other federally recognized Indian Reservation, and that all of the laws of the United States that pertain to federally recognized Indian tribes would pertain to Indians on those rancherias.

Other rancherias and the Round Valley Reservation in Covelo apparently had passed through the “disestablishment” period of the 1950s and 1960s without their tribal trust status being dissolved.

**There are ten tribes in Mendocino County today, scattered throughout the County, from the Cahto Tribe near Laytonville to the Manchester Tribe near Point Arena. All have tribal governments of some kind, and have varying levels of economic development. Several (Cahto, Sherwood Valley, Coyote Valley, and Hopland) operate gaming facilities. Others, such as Pinoleville, have plans to establish gaming in the future.**

As noted, the term “rancheria” is generally used to refer to land acquired by the federal government for formerly homeless Indians; these lands had sometimes been in private ownership before the rancherias were created and were often near existing cities.

A “reservation” was typically pre-existing federal land on which an allotment for a tribe (or, as in the case of the Round Valley Reservation, five tribes) was carved out.

In addition, Mendocino County has at least two non-federally-recognized Tribes, one of which, the Yokayo Tribe, purchased the 120-acre parcel on what is now Old River Road between Ukiah and Hopland in fee during the late nineteenth century.

Although the Yokayo Rancheria is a 120-acre parcel zoned rangeland, it has been inhabited continuously by members of the Yokayo Tribe since the late nineteenth century; today, it has approximately 30 dwellings on the property. Its members are indisputably of Native American descent (and can qualify for such things as State community development grants and medical care through Indian Health Services), but the Tribe has never formally been recognized by the U.S. government as a Tribe.

**!!! The City of Fort Bragg in it's North Coast MLPA Initiative Process letter dated 080609 to Mike Chrisman, Secretary resources Agency, state quite succinctly the matter before you. On pg 3 "MPA designations must not restrict traditional fish and shellfish harvest by Native Americans. This point is self explanatory."**

!!! *Also From*

**MEMORANDUM**

**TO: Planning Commission**

**FROM: Diana Hershey, Planning Team**

**SUBJECT: Tribal Lands Designation**

**DATE: August 29, 2007**

In Mendocino County:

Here is a list of grants that the Tribes can get for housing/infrastructure funding that are available to Native Americans (Tribes or Tribal Consortia) as set asides (unavailable to any other jurisdictions):

- Native American Housing Assistance and Self Determination Act Funds - Housing, infrastructure, other categories
- USDA Rural Development –Native American Utility Set Aside
- Indian Community Development Block Grant
- EPA Small Community Drinking Water System Tribal Set Aside Grant

\*\*\*Mendocino County has a relationship with Tribes and Tribal members, living within it's geographical boundaries and both respects and understands that Tribal, clan, and family ties extend beyond geopolitical boundaries. TEK is the baseline. Are SAT members aware of Mendocino Coast Tribal Use Areas? Will the SAT do it's own research or would be best if it were gathered locally and submitted?

\*\*\*Who determines where (location, dates) the SAT meets? Is the SAT considering, or in contact with Mendocino County Tribes, from the Gualala River to the county's northern border for TEK and cultural use areas, including but not limited to subsistence, recreational, commercial, and ceremonial?

\*\*\*Though the Gualala River is beyond the “study” region boundaries, Tribes and members use the same productive site and access north and south. Were the cumulative impacts of effort shift of tribal use in the NCC Region considered along with Tribal loss of access in the Central Coast and South Coast 'Study' Regions?

\*\*\*SAT deliberations, and guidelines are narrowly objective to use patterns and temporal spatial access to shore use by Tribes. Health issues are important to tribes using near-shore, and intertidal Ocean Resources of the Mendocino / Sonoma coasts. Individual subsistence use and harvest of shellfish and particularly seaweeds are highly valued for health benefits and cultural survival. In the way that the value of “fishing areas” is weighted by market price/ex-vessel price calculations, does the MLPA SAT have a socio-economic index for wildcrafted healthcare, and weighting subsistence fisheries?

Speaking on this very subject on *August 5, 2009* is Kashia Tribal Chairman Lester Pinola at the F & G Commission Hearing.

<http://albionharbor.org/audiotakes/openthecoast.mp3>

### ***California Native American Tribes***

(2005) Amended

SB 18 uses the term, California Native American tribe, and defines this term as “a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the Native American Heritage Commission” (NAHC). “Federal recognition” is a legal distinction that applies to a tribe’s rights to a government-to-government relationship with the federal government and eligibility for federal programs. All California Native American tribes, whether officially recognized by the federal government or not, represent distinct and independent governmental entities with specific cultural beliefs and traditions and unique connections to areas of California that are their ancestral homelands. SB 18 recognizes that protection of traditional tribal cultural places is important to all tribes, whether federally recognized or not, and it provides all California Native American tribes with the opportunity to participate in consultation with city and county governments for this purpose. As used in this document, the term “tribe(s)” refers to a California Native American tribe(s).

California has the largest number of tribes and the largest Native American population of any state in the contiguous United States. California is home to 109 federally recognized tribes and several dozen non-federally recognized tribes. According to a 2004 California Department of Finance estimate, the Native American population in California is 383,197.

Tribal governments throughout California vary in organizational forms and size. Some tribes use the government form established under the Indian Reorganization Act of 1934 (25CFR81) with an adopted constitution and bylaws. Other tribes have adopted constitutions and bylaws that incorporate traditional values in governing tribal affairs. Many tribal governments are comprised of a decision making body of elected officials (tribal governing body) with an elected or designated tribal leader. Some tribes use lineal descent as the means of identifying the tribe’s leader. In general, tribal governing bodies and leaders serve for limited terms and are elected or designated by members of the tribe. Tribal governments control tribal assets, laws/regulations, membership, and land management decisions that affect the tribe.

While the provisions of SB 18 (passed and later amended to include “person” as a tribe) apply only to city and county governments and not to other public agencies, it is important to note the full recognition given to all members regardless of federal status.

Respectfully submitted  
Tomas DiFiore



## Draft Regional Profile of the North Coast Study Region – Kelp and Edible Algae Comments

**The California Marine Life Protection Act (MLPA) Initiative** has produced the Draft Regional Profile of the North Coast Study Region (Alder Creek near Point Arena in Mendocino County to the California-Oregon Border), ... as part of a joint fact-finding effort, communities and members of the public are invited to review the draft regional profile and provide suggestions for how to improve the document.

### Comments Specific to the 1st printed edition, December 2, 2009.

To:

California Marine Life Protection Act Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311 Sacramento, CA 95814  
<http://www.dfg.ca.gov/mlpa>  
[MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov)

From:

Tomas DiFiore  
POB 612 Little River  
CA 95456-0612  
Member - Albion Harbor Regional Alliance

All comments follow prescribed format of:

“Comments are most helpful if they are provided as a bulleted list, with page numbers and paragraphs identifying specific portions of the document. Additionally, suggestions are welcome for new sources of information that may be referenced in the revised version of the document. Comments will be incorporated to the extent possible and a revised version of the regional profile will be produced as an additional resource for developing marine protected area proposals.”

Comments begin with

- 1) page numbers and paragraphs,
- 2) paragraph or charts are quoted or referenced,
- 3) concerns, questions and comments are led by three asterisks (\*\*\*) and may be interspersed between sourced data for connectivity of concern (“suggestions are welcome for new sources of information”) and begin with (!!!).

While this may seem a long way around to a point, the NC Draft Regional Profile is scattered in it's organizational structure and distant relevant sections regarding the very same ecosystem components are portioned throughout the document. In this document, Live links will also be incorporated into these comments occasionally as all MPA, MLPA, and MLPAl data and outreach is facilitated through the digital medium including the Proposals use of MarineMap and Google Earth. Links are active going to related audio, video, PDF, document, digital file types or media.



### Chapter 3.1.3

p31 of 185 (p14 of Draft by Chapter)

Under Estuaries and Lagoons, the NC 'Study' Region coastline is 225 miles long.

### CHAPTER 3.1.2 Intertidal Zones

p27 of 185 (p10 of Draft by Chapter)

Table 3.1-4 is a summary of the linear length and percentage of total shoreline (approximately 366 miles as measured following the contours of the coastline) for each shore type in the study region based on data from NOAA ESI. **The study region is dominated by sandy beaches, followed by salt marshes, sheltered tidal flats, and exposed wave-cut platforms in bedrock, in that order.**

\*\*\*Why is there a different sequence in sentence form than Table 3.1-1 which follows?

**Table 3.1-1:** Habitats within the north coast study region, biogeographic region, and state  
Total Shoreline (Length, mi) 366 miles total

Intertidal: Rocky Shores 88

Intertidal: Sandy Beaches 131

Intertidal: Coastal Marsh 80

Intertidal: Tidal Flats 51

These add up to: 350 miles - 225, 366, 350?

\*\*\*How are the three measurements used throughout the NC Regional Profile (Draft)? Was there a different calculation method for each number? Different source data?

\*\*\*These distances are used throughout overlapping data layers in modeling and accuracy is important. If differences are due to scale resolution, then the actual extent of habitat within the along shore distances and area as specified in percentages, could be off. Is the calculation of “percentage of error” reflected in Habitat Type distribution and LOP in the guidelines? Replication?

### Chapter 3.1.5

p38 of 185 (p21 of Draft by Chapter)

Bull kelp is found on bedrocks, boulders, and reefs and can live at depths of 10 to 70 ft. (Vadas 1972). Bull kelp beds are persistent over time but exhibit marked seasonal and annual changes in the extent of the canopy, primarily due to winter storm activity and changing oceanographic conditions such as El Niño events (Ebeling et al. 1985; Harrold et al. 1988; Zimmerman and Robertson 1985). Bull kelp distribution also can be affected and controlled by several other factors both biotic and abiotic. Physical factors which influence bull kelp distribution include

bottom light intensity, nutrients, wave action, shifting sediments, the character of the substrate (rocky, sandy, silty, coarse-grained), water temperature, water motion and salinity (Dayton 1985). Several factors may influence the distribution and productivity of bull kelp and identifying the individual factors influencing a bull kelp bed are often difficult. For example, higher water temperatures decrease the amount of nutrients available in the water column for uptake (DFG 2001b). Biological factors which influence *Nereocystis* distribution include grazing, disease and competition (Dayton 1985). Human impacts to bull kelp beds have not been as thoroughly documented as giant kelp beds (DFG 2001b). These impacts may be caused by thermal pollution, sediment or agricultural runoff, industrial waste.

\*\*\*Duly noted is any absence of mention of hand harvesting as a human impact. The scale and distribution of bull kelp is very different than giant kelp. Percentage of areas that are harvested to the entire resource are very small scale. Hand harvesting of bull kelp in the NC Region is first contained by access and gear type, then tides and weather. What is the definition of “impact” or “human impact” and how does it apply outside the categories of beneficial or not (to ecosystem function or services) and LOP? Do acceptable levels of harvest (within mpas) of any species (likely to benefit) presume a definition of impacts? How is this best explained placed in the context of the fast growing bull kelp canopy that is left intact after minimal harvest of frond tips?

\*\*\*How are nutrients and temperature addressed in the water column of bull kelp beds in the north coast region? Giant kelp beds and canopy occur further offshore than the intertidal and very nearshore bull kelp beds.

**!!! Related Info From NMFP chapt 2 2002**

“Kelp forests off California are dominated by two species, the giant kelp and the bull kelp. Giant kelp can grow up to 100 feet and prefers the more calmer portions of the coast south of Point Conception. Large kelp beds have been identified in waters up to one mile offshore in the area from Point Conception to Gaviota and at San Miguel, Santa Rosa, and Anacapa Islands. Giant kelp is one of the most productive plants on earth able to grow 18 inches a day in full sunlight. While the giant kelp may live several years, the life of each frond is typically six months or less. It is to the kelp’s advantage to replace old fronds with new and buoyant fronds.”

“Bull kelp is more resistant to the rougher waters outside protective bays and inlets. Some areas contain both species but, where colder waters dominate through out the year, bull kelp forms a monoculture forest. Bull kelp is an annual plant dying off each fall season while giant kelp is a perennial and may live seven to eight years. Kelp forests provide vertical water column habitat for many types of adult and juvenile fish, marine mammals such as the sea otter, and other marine animals.”

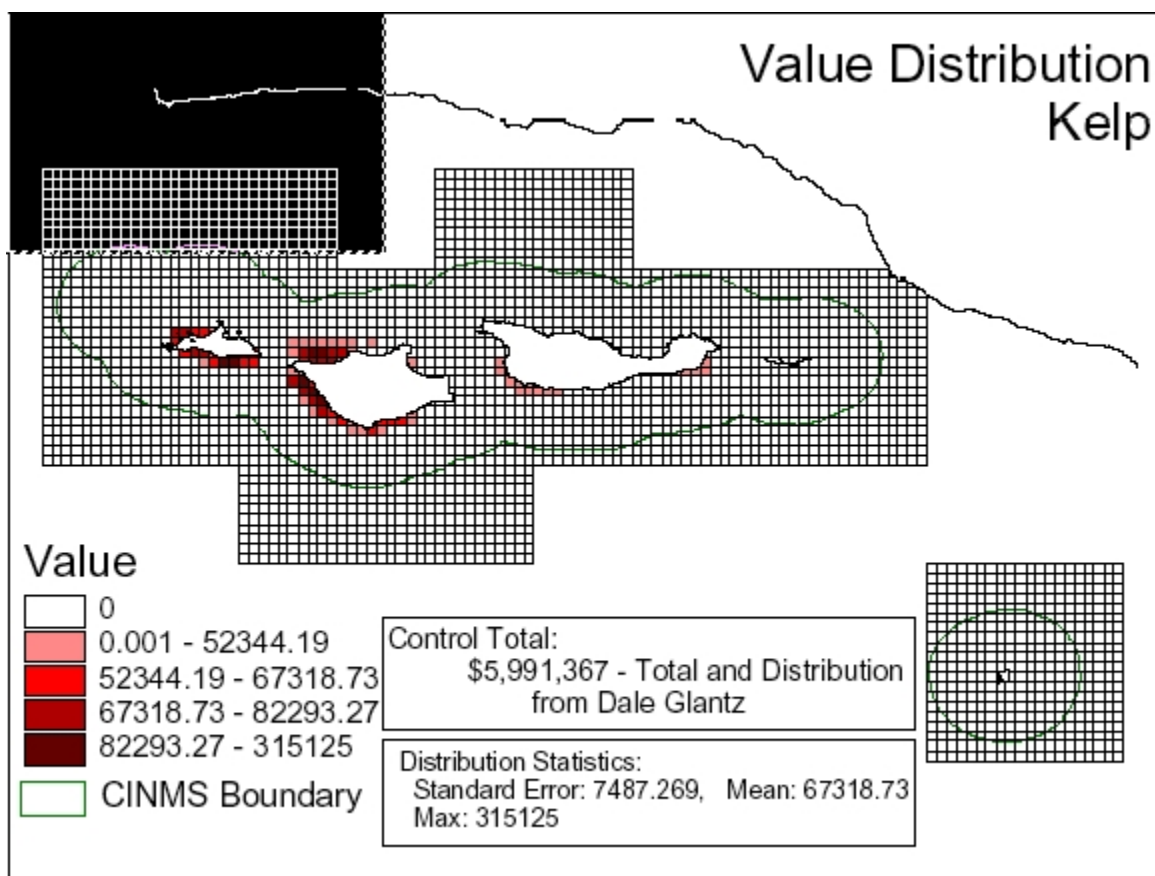
“Kelp detached and transported during storms provides a source of food for other local habitats. Sandy beach fauna, from invertebrates to shore birds, utilize the kelp washed up on

the beach. Kelp wrack can provide critical food resources for wintering shore birds. Kelp that sinks provides food for deep water benthic organisms which are dependent on drifting food. Kelp that detaches and forms floating rafts provides habitat for juvenile rockfish and other pelagic species.”

**!!! From Other Concerns, CHIS 2006 Final**

**B.4. Harvesting of Plants**

“According to state law (CCR Title 14/Ch.4/Sect.30.10), no surfgrass or eelgrass may be cut or disturbed in California. There are 74 designated kelp beds in California which may be leased. Beds open to harvest by permitted companies exist around the entire perimeter of San Miguel, Santa Rosa and Anacapa, and about 75% of the coastline of Santa Cruz. Beds available for 20-year leases occur along ~25% the southwestern coast of Santa Cruz and entirely around Santa Barbara. In recent years ISP Alginates was the only company harvesting giant kelp in the Park, but their activity now (2005) is restricted to the San Diego area and they will soon be moving operations to Scotland (Dan Richards, Marine Biologist, Channel Islands National Park, pers. comm.). Figure 68 shows the spatial distribution of average annual revenue from kelp harvest in Park waters from 1996-1999. At least during these years, kelp harvest was concentrated around San Miguel and Santa Rosa (Figure 68).”



This seems to be a fair representation of the commercial scale of concerns regarding impacts in

MPAs and the guidelines which then bias LOP and Key Habitat designations being applied to the north coast kelp beds. **But not the actual scale of harvest** of bull kelp on the north coast.

\*\*\*What is the total area of kelp beds in the study region individually assessed for each biogeographical subregion and if possible by location and categorized by areas of estuarine influence?

“Direct impacts to kelp beds may occur through commercial or recreational fishing in or directly adjacent to the beds, and **commercial kelp harvest** (DFG 2001b) Bull kelp has a typical life span of one year. Spores are released in the late fall and gametophytes develop during the winter months (Foreman 1984). By early spring the young sporophytes (a mature plant) typically appear (Vadas 1972). Bull kelp sporophytes are slow-growing for the first three to four weeks and then accelerate rapidly to canopy height by midsummer (DFG 2001b; Springer et al. 2006). Bull kelp typically dies by early winter with the onset of the winter storms.”

\*\*\*During that one year cycle, healthy fronds reach the surface as canopy (for about 4 months) and are hand harvested across a spatial time span of approximately 1 month. In that span of time, harvests are constrained by access, wave height, swell, winds, and blemishes on the fronds. The niche market of edible algae requires a level of quality and handling that further constrain amounts removed. Most studies point to the effects of increased growth (kelp forest) due to increases in filtered light below the surface (photosynthesis response). What are the variants of kelp biomass by forest type and canopy growth and ecosystem function?

\*\*\*How are the three dimensional characteristics of the two kelp forest types (often used in scientific literature) different in their species assemblages in the North Coast Study Region?

!!! June 2007 Kelp Bed 220 Monterey Bay (Amended Changes) Chapter 6

#### **Specific Statewide Regulations on Kelp Harvest:**

Specifically, the Department recommends a suite of changes to the existing management regulatory processes that became effective May 9, 1984 and March 26, 1996 (Sections 30 to 30.10 and Sections 165 and 165.5, Title 14, CCR, respectively) (Appendix 1). The recommended changes include: 1) an amendment to that clarifies what weighting methods are acceptable to determine the weight of kelp being landed; 2) an amendment that clarifies what information is required in landing records and what processes are to be followed in submitting reports (§ 165(b)); 3) amendments that further restricts harvest methods and seasons for bull kelp near the southern limit of that species geographical range; 4) amendments that increase the number of kelp beds that are closed to harvest (§165(c)) to prevent focused or repeated harvest and limit risk of resource damage in those beds where there has historically been little kelp resource; 5) an amendment that specifically addresses resource use conflicts in bed 220 near Monterey by closing a portion of the bed; 6) an amendment that provides a mechanism for restricting harvest by explicitly allowing imposition of temporary harvest controls in beds or portions of beds where necessary for resource protection; and 7) an amendment that

## Draft Regional Profile of the North Coast Study Region – Kelp and Edible Algae Comments

provides an easy method for interested parties to determine which kelp beds are currently available for leasing (§165.5 (b)).

“Most Kelp water column and nutrient upwelling **studies are of giant kelp forests**. Growth of kelp is triggered by the interaction of light and nutrient availability, both of which are needed to support the high growth rates in kelp. While light is abundant in summer, nutrients are often depleted due to thermal stratification and phytoplankton production. In contrast, nutrients usually accumulate during the winter. This results in late winter and early spring as the main growing season for kelp because both light and nutrients are available.”

“Plant growth can become nutrient limited in summer and fall, except where nutrients are continually replenished by tidal mixing. In Southern California Bight, nutrient levels are low in the summer and fall, especially above the thermocline, resulting in reduced *Macrocystis* growth and deterioration of the giant kelp canopies.”

\*\*\*This seems to differ from the North Coast Region's ecosystem (dynamic as it is) variants regarding kelp distance from shore, interactions with the LME California Currents, upwelling currents, north and south food transport systems, onshore and river outflows (plumes) within the range of the species bull kelp, *Nereocystis* in the North Coast Study Region.

\*\*\*Can the Ecotrust Spatial Data layer on MarineMap showing the annual growth cycle extent of “drift kelp” which I assume is a different category than a stationary seaweed like fucus or nori? Can this layer be time scaled, or temporally linked to location and ecosystem function?

\*\*\*In annual kelp species, the gametophyte is the overwintering stage. “Over-wintering stage” is not really descriptive of the timeframes involved. The Draft Regional Profile does not do any better at describing this critical cycle. Canopy coverage may fall apart one frond at a time and drop off and new growth returns to the surface forming canopy in shallower waters. Select hand harvest of frond tips allows for regrowth immediately at the canopy level and no loss to regenerative capacity has been documented. Are the *Laminaria* included in this drift kelp data layer?

Male and female gametophytes then produce sperm and eggs, respectively, which fuse into zygotes from which new diploid sporophytes grow out.

“Canopy-forming kelp species, such as *Macrocystis* spp. and *Nereocystis luetkeana*, extend to the surface and thus, effectively block light penetration to the substrate below. Certain animals associated with the kelp forests, especially fishes, are specialized to live among the top floating part of the canopy, while others are specialized to live in the midwater section. The holdfasts host their own specialized community of associated invertebrates. Many benthic invertebrates are also associated with the smaller understory kelp species, which provide efficient shelter and three-dimensional habitat. A diverse community of red algae (e.g., *Gigartina* spp.) also thrives in the smaller understory. The presence and physical structure also influence hydrological

properties, such as the slowing of currents. Resulting effects include increased sedimentation and accumulation of finer sediment in the low current areas within the kelp forests. The three-dimensional structure of kelp forests and the influenced physical oceanographic processes are noticeably different than adjacent non-forested areas.”

\*\*\*How does the ecosystem function and structural description of a 'bull kelp' forest differ from the familiar 'giant kelp' forest? “Understory kelp species and benthic invertebrates, three dimensional habitat” – how do these descriptions fit the long stem of the “bull kelp” species and it's holdfast over the vertical distance through the water column to the canopy?

p38 of 185 (p21 of Draft by Chapter)

Bull kelp has a typical life span of one year. Spores are released in the late fall and gametophytes develop during the winter months (Foreman 1984). By early spring the young sporophytes (a mature plant) typically appear (Vadas 1972). Bull kelp sporophytes are slow-growing for the first three to four weeks and then accelerate rapidly to canopy height by midsummer (DFG 2001b; Springer et al. 2006). Bull kelp typically dies by early winter with the onset of the winter storms.

\*\*\*Do gametophyte survival and regenerative capacity differ by substrate in the North Coast 'study' region?

Total kelp canopy coverage in the waters in the north coast study region has ranged from a low of 0.08 square miles (0.19 sq km) in 2005 to a high of 2.76 square miles (7.14 sq km) in 2008 (Table 3.1.5.1). These numbers reflect a similar trend occurring along the entire coast of California, with kelp persistence shrinking and growing over the same period. **The majority of the kelp surveyed is found from the Fort Bragg area to the southern end of the study region.**

\*\*\*Is that the majority of the kelp or the majority of the kelp surveyed?

**Table 3.1-5: Kelp canopy coverage within the north coast study region**

Survey Year Canopy Coverage (mi<sup>2</sup>)

1989 2.30

1999 1.57

2002 0.40

2003 0.16

2004 0.60

2005 0.08

2006 No data north of Pigeon Point

2007 Data collected but not yet processed

2008 a 2.76

a) A small portion of the coastline between Slaughterhouse Gulch (Mendocino County) and Jack Peters Gulch (Mendocino County) was not captured during the 2008 survey.

## Draft Regional Profile of the North Coast Study Region – Kelp and Edible Algae Comments

\*\*\*How was the omission of of that small portion handled in the Regional Profile bull kelp distribution analysis and then the MarineMap data layer? Were the acreages in the area 'not captured' removed from all calculations? From calculations of percent overall? Were they extended by association to substrate data?

\*\*\*Slaughterhouse gulch is in Albion, Google attests to this.

“Nestled along a river that shares her name, **Albion** on the Mendocino Coast was a seasonal home to Native Americans who harvested the bounty of the ocean for mussels, abalone and seaweed.” <http://www.baysider.com/attraction/117856/slaughterhouse-gulch>

NMFS shows two locations...

**Slaughterhouse. Gulch** T22N R17W, Sec. 19. Slaughter House Gulch T16N, R17W, Sec. 14 in the document *NMFS California Anadromous Fish Distributions*

### California Coastal Salmon and Steelhead Current Stream Habitat Distribution Table

Latitude/Longitude 39.7443°N, 123.8008°W ( 39°, 44', 39.5" N; 123°, 48', 2.9" W )

The legal description is: California, Mt. Diablo Meridian T22N,R17W,sec19

This places Slaughterhouse near Usal. Which means no mapping of kelp beds between Usal and Jack Peters Gulch. The earlier description places it in Albion. And thus no mapping from Albion to Jack Peters Gulch.

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\*\*\*Which location for Slaughterhouse Gulch is meant?

\*\*\*In the more than one hundred square miles of area of the 'study region' south of Fort Bragg, bull kelp spatial distribution may not fit the classification of “kelp bed” used to describe *Macrocystis*. Commercial kelp leases use the term kelp beds, and these beds are listed by numerics. The average size (surface area dimensions) are approximately one square mile. What is meant by use of the term 'bed' or 'kelp bed' in it's application to the kelp resource on the North Coast and in the Draft Regional Profile not inclusive of the legal permitted leases near Crescent City?

**Executive Summary** of the North Coast Profile Draft states:

\*Bull Kelp (*Nereocystis luetkeana*) dominates the study region with dense canopies that support diverse marine life. Kelp beds have been mapped at a fine-scale resolution in six annual surveys (1989, 1999, 2002, 2003, 2004, and 2005) and are generally found off of rocky headlands in the southern portion of the study region.

*And that:* “Though, none of the administrative kelp beds in the region are currently open to commercial take, harvest of edible seaweeds does occur.”

**But kelp beds are leased** near Crescent City - as has been noted at BRTF and SAT meetings (111809) and (121609) in Eureka by the company Eco-Nutrients.

\*\*\*Is it appropriate to consider the kelp distribution area (square miles) in the overall context of the western boundary of the study area – the State Waters demarcation? What of the kelp assemblage's eastern canopy edge (usually along shore, in coves, bays) and the actual distance from shore of the western edge of the canopy in the north coast region? This edge seems to end before where *Macrocystis* would start for the sake of commercial lease and harvest in regions to the south.

The complex surface, crevices, and three-dimensional structures of areas with hard substrates support a variety of other plant and animal species. **Adjacent to these hard substrates are often unconsolidated sediment, which is commonly transported back and forth by wave action.** The kelp plant structure slows water movement, thereby allowing suspended sediment to settle to the bottom. Increased sedimentation rates may also reduce the recruitment rate and survival of gametophytes (Devinny and Volse 1978; Foster and Schiel 1992).

\*\*\*This sounds like the situation at mouths of rivers and streams. But projected impacts due to sedimentation do not seem applicable in the north coast study region to the Bull Kelp 'forest' interaction with ocean nearshore tidal currents or the substrate associated with “bull kelp” and “drift kelp” data layers. Through flow of tidal action and nutrients even in bays is constant. During fall and winter when gametophyte production settles and waits for spring weather.

\*\*\*Even so, are yearly survey data of the extent of kelp canopy, spatial projections of temporal analysis? Is there a “carrying capacity” index for “bull kelp” and associated species assemblages by substrate type and location to outflow sources of nutrients and sediment?

!!! Kelp depends on sufficient light availability for photosynthesis. Wave action keeps the fronds in constant motion, allowing maximum exposure to sunlight and enhancing uptake of nutrients (Barnes and Hughes 1993). Kelp plants have a minimum light availability necessary to perform net photosynthesis. The energy produced during photosynthesis is stored as the carbohydrate laminarin that can be used for growth if sufficient nutrients are available. The minimum light requirements differ for different kelp species; canopy-forming species often need more light, while understory species are often more low-light adapted. (Kinlan et al. 2003). Research results show that limiting light and nutrient resources can inhibit recruitment of embryonic giant kelp sporophytes.

\*\*\*How do comparisons of light levels and wave action, water column temperatures and nutrient movement through kelp beds (drift kelp areas) differ in previous study regions when compared to the north coast region? How do ecosystem models in the North Coast Study Region account for these differences?



**!!! LEK of** hand harvest of choice edible bull kelp frond tips is from the edge locations (where most harvest occurs) due to moving flows and nutrients, and has little if any effect on light levels reaching the lower strata of benthic communities. The fronds and the entire plant canopy and stipe already move in patterns bound only by swell, circulatory flows of nearshore currents, and length of stipe, causing a constant shifting availability of light below the canopy .

Kelp forests fulfill important ecosystem functions, including:

#### **Biological**

- Provides habitat and shelter/refuge for many plants and animals
- Provides nursery and adult habitats that support species abundance and diversity
- Provides breeding grounds for fishes and marine mammals
- Provides feeding grounds for birds, fishes, invertebrates, and other marine organisms (Holbrook et al. 1990)
- Provides substrate for attachment

#### **Physical**

- Filters water and stabilizes sediment

By performing these functions, kelp forests are able to maintain plant and animal species diversity and abundance as well as support important recreational and commercial fisheries.

**\*\*\***Please explain the following biotic communities related to kelp dominance and the presence or lack thereof of these biotic communities in the North Coast 'Study' Region? This may require a breakdown to percentage of sub-regional biogeographical or regional analysis by species (*Macrocystis sp.* and *Nereocystis luetkeana*).

“Kelp forests and macroalgal habitats support diverse communities that contribute to primary productivity, as well as support biomass production, biodiversity, and a complex trophic structure (discussed in various sections throughout this chapter). These communities and their rocky substrate provide habitat for many different marine organisms. The three-dimensional structure of kelp forests can be divided into functional sub-habitats used by various organisms: The canopy is the region where the blades of the canopy-forming kelp species reach the surface. The midwater area is dominated by the stipes and lower blades of the canopy-forming algae. The complex structure of the benthic layer is comprised of the understory kelp, other algae, and the substrate. Some organisms associated with kelp forests can utilize all of these sub-habitats, but others are specialized in using certain areas.”

“**In California**, there are two primary canopy-forming kelp, giant kelp, *Macrocystis sp.* (hereafter called giant kelp), and bull kelp, *Nereocystis luetkeana* (hereafter bull kelp). These two groups have geographic limitations, giant kelp spanning both the northern and southern hemispheres in temperate waters, and bull kelp primarily found in the northern hemisphere in

temperate to cold waters (North 1971). These two species exist together along the central California coastline in separate or mixed stands (Foster and Scheil 1985). North of Santa Cruz, bull kelp becomes the dominant canopy forming kelp. Beneath the canopy are understory kelp and, on the bottom substrate, more encrusting or shrub-like algae. The kelp forests within the north coast study region are dominated by bull kelp (surface canopy), *Pterygophora californica* and *Laminaria setchellii* (understory), and foliose algae beneath (Foster and Scheil 1985).

*p52 of 185 (p35 of Draft by Chapter)*

**Plant species:** *A variety of marine algae provide habitats and food for invertebrates, fishes, and marine mammals in the south coast study region.* Further information in the ecology of giant kelp can be found in section 3.1.5. More information on the harvest of kelp can be found in section 5.5.1.

\*\*\*How were recreational (consumptive and non-consumptive) use considered in the socio-economics and ecology of Bull Kelp in the North Coast Study Region? Subsistence harvest of edible algae locally includes bull kelp, albeit in minute quantities per individual. How are recreational (consumptive and non-consumptive) use (and) (subsistence) considered in the socioeconomics? Eat a breakfast of the original superfoods with a view, enjoy the mental health stimulant and overall benefits to health.

\*\*\*What other personally subjective added-value component of the North Coast biosphere offers so much to so many? And just a taste, a nibble, a bite is enough.

!!! Mechanized harvest of giant kelp takes the entire top, stem, and the canopy down to 4 feet below the surface. Hand harvest methods of bull kelp select only a few fronds per plant. Only the tip (end) of the fronds to within a foot of the floating head are cut advancing new regenerative growth without reducing canopy or measurably reducing ecosystem services.

\*\*\***Bull Kelp (*Nereocystis luetkeana*)** dominates the study region with dense canopies that support diverse marine life. Kelp beds have been mapped at a fine-scale resolution in six annual surveys (1989, 1999, 2002, 2003, 2004, and 2005) and are generally found off of rocky headlands in the southern portion of the study region. *from page 13*

\*\*\*This seems to exclude later mapping efforts (although rather incomplete) from 2006, 2007, 2008. Please explain?

## Upwelling Nutrients and Thermocline

!!! 2.3 Water Column Characteristics and Processes: Nutrients (prepared for the MBNMS Site Characterization by: Kenneth Coale, Debbie Colbert, Eric Kingsley and Heidi Zamzow, Moss

Landing Marine Laboratories) Nutrients are subject to dynamic temporal variability (Figure 4; Broenkow and McKain, 1972; Shea and Broenkow, 1982).

“The main cause of the seasonal differences in nutrients is variation in wind-driven upwelling. When the wind blows south along the coast, an offshore transport of surface waters results. This water is replaced with cold nutrient-rich water from a depth of 25-300 m (Breaker and Broenkow, 1989; and see Physical Oceanography section of the MBNMS Site Characterization). Surface NO<sub>3</sub> is between 0-2 µM during non-upwelling periods, and up to 30 µM during strong upwelling.”

“Processes which affect upwelling therefore affect surface water nutrient concentrations. For example, at a deep water station located in the middle of the Monterey Bay (CALCOFI station 3, 36°46.7'N 122° 01.3'W), Chinburg and Lasley, (1977) found a surface temperature of 14.52°C with a NO<sub>3</sub> concentration of 2.4 µM during a nonupwelling period. During an upwelling period they found a surface temperature of 10.12°C with a NO<sub>3</sub> concentration of 24.1 µM. In shallower water close to shore and over shelves, the effect of upwelling is not as pronounced. In these regions, the upwelled water comes from above the nutricline with a corresponding lower concentration of nutrients. The upwelling periods in Figure 4 (Smethie, 1973) have surface NO<sub>3</sub> concentrations between 1-5 µM due to the shallow bottom depth. During non-upwelling periods, internal tides can have a major effect on nutrient concentrations nearshore (Broenkow and McKain, 1972; Shea and Broenkow, 1982; and see Physical Oceanography section in the MBNMS Site Characterization).”

#### 2.5.2 Algal Assemblages Associated with Kelp

Forests Within the MBNMS, there are rich algal assemblages associated with the kelp forests.

“Subsurface canopies of the stipitate kelps *Pterygophora californica*, *Laminaria setchellii*, and several other species occur beneath the surface canopies (McLean, 1962; Foster and Schiel, 1985; Harrold et al., 1988). Although they occur throughout the MBNMS, these understory kelps are more characteristic of areas more exposed to wave action (Harrold et al., 1988). Other algae, such as fleshy red species, can form dense algal turfs under the canopies (Table 1; Breda and Foster, 1985; Harrold et al., 1988) and are often distributed along a depth gradient (Harrold et al., 1988) with the more robust species occurring shallower and the more delicate species occurring deeper (McLean, 1962; Devlinny and Kirkwood, 1974).”

“Kelp canopies alone or in combination with one another can reduce the amount of light reaching the substrate to less than 1% of surface irradiance (McLean, 1962; Reed and Foster, 1984). During the winter months along the central California coast, increased water motion from winter storms removes kelp canopies thereby increasing the amount of light reaching the substrate, which in turn can have dramatic effects on the algal assemblages beneath them (Foster, 1982b; Reed and Foster, 1984; Breda and Foster, 1985). One common phenomenon

occurring in areas where surface canopies have been removed is the recruitment of the brown alga *Desmarestia ligulata* (Foster, 1982a; Reed and Foster, 1984). This species forms a dense subsurface canopy which can inhibit recruitment of other algal species including giant kelp (Dayton et al., 1992).”

“During the comment period for the first release of the MBNMS Kelp Report, the issue of *Nereocystis* utilization by kelp harvesters was raised. As stated above, north of Santa Cruz, the bull kelp, which occurs from Point Conception to Unimak Island in the eastern Aleutians, becomes the dominant canopy-forming kelp. However, none of the *Nereocystis* beds in the MBNMS appear to be of any great size (Van Wagenen, 2000).”

“The effects of *Nereocystis* harvesting on the abundance and distribution of *Nereocystis* have been studied in British Columbia (Foreman, 1984). These studies can find little effect from harvesting at the site scales investigated, though Roland (1985) found that harvesting fronds can impede plant growth and reproductivity. However, *Nereocystis* is an annual plant (*Macrocystis* is a perennial plant), is limited in its MBNMS distribution, spore production is seasonal (late spring to the death of the plant in winter), and harvesting of *Nereocystis* removes the reproductive tissue (unlike with *Macrocystis* harvesting) (DFG, November 1995). Therefore, there is a valid issue regarding the effect of localized, concentrated harvests of *Nereocystis* in the MBNMS. Such concerns would be particularly realized if such harvests occurred prior to spore release. California restricts harvests of *Nereocystis* north of Point Arguello (California Code of Regulations: Title 14, Section 165(c)(4)), because the beds are too important to the ecology in those areas. They also outright bans harvests in certain kelp beds north of San Francisco (DFG Kelp Beds #303, 304, 305, 306 and 307) because their production is too variable to allow harvest (Robson Collins, pers. Comm.)”

p25

“The total Sanctuary-wide kelp resource canopy decreased from 16.918 square miles in 1989 to 14.053 square miles in 1999. The greatest loss in kelp canopy extent between the two inventories was observed within the Monterey Bay itself (DFG Beds #222, 221 and 220), and the greatest gain in kelp resource extent was noted in DFG Bed #217, between Yankee Point and Point Sur (Van Wagenen, 2000). [NOTE: Caution must be used in reviewing and comparing these data, which actually only represent two data points, separated by a ten year period. These data do not necessarily reflect long-term trends in kelp resource extent and distribution (Van Wagenen, 2000). Caution must also be extended to the idea that deciding on a point in time when kelp is at its maximum extent BEFORE the overflight occurs is challenging.]”

p28

“It should also be noted in this section that there may be distinct differences in environmental effects caused by mechanical harvesting versus hand-harvesting. Many of the studies mentioned above, such as Miller and Geibel (1973), investigated kelp harvesting situations that more

closely resemble effects that mechanical harvesters create. Hand-harvesters generally do not cut as deep or in as distinct a pattern as mechanical harvesters (Aaron King, pers. obs.; David Ebert, pers. Comm.) No studies are known that describe any environmental effect differences between the two methods of harvest.”

p30

“Other more active uses of kelp beds include SCUBA diving, kayaking, and other sports. Kelp beds provide the environment that attracts many of these recreational users to the sport. Most of these “ecotourism” type industries are on the increase in the MBNMS area. One business in the area that rents and sells kayaks, as well as gives lessons on kayak use, has stated that between 1989 and 1999, kayak use from its shops has increased ten-fold (Cass Schrock, pers. Comm).”

*following paragraph by Weinstein (1996), puts this into perspective:*

“The Northern California Diver’s Association estimates that the number of divers in the central coast rose 10-20% in the 1980’s (R. Gallagher pers. comm.). Dive shops from Monterey Bay to Santa Rosa (north of MBNMS) made \$14 million in retail sales in 1994, plus about \$5 million in associated revenues such as lessons and boats. An estimated 95% of this revenue was generated in the Monterey Bay area (R. Gallagher pers. comm.). This value complements the findings of another study estimating SCUBA and snorkeling revenue at \$13.2 million dollars in 1988 for San Mateo, Santa Cruz, and Monterey counties (Meyer Resources, 1990).”

\*\*\*Aside from 3.2.2 Ecological Effects from Other Uses of Kelp generally speaking, other uses of kelp resources, while not directly tied to the “take” of kelp, could have an impact on the kelp forest and its ecology. Are the “bull kelp” areas (forests) a draw to recreational use? Mostly it seems people try to avoid them up here on the North Coast.

\*\*\*For years in which overflight data is available and where there has been high kelp growth due to state-wide coastal upwelling, there may be very sparse kelp canopies. How is this temporal shift in canopy (not to mention percentage of error in the difficulty of timing overflights at the maximum bloom cycle) adjusted for calculation of the ecology of bull kelp (*Nereocystis*) in the North Coast Study region?

*The Monterey Bay National Marine Sanctuary Final Kelp Management Report* articulates well this concern.

Respectfully Submitted

Tomas DiFiore

**The California Marine Life Protection Act (MLPA) Initiative** has produced the Draft Regional Profile of the North Coast Study Region (Alder Creek near Point Arena in Mendocino County to the California-Oregon Border), ... as part of a joint fact-finding effort, communities and members of the public are invited to review the draft regional profile and provide suggestions for how to improve the document.

**Comments Specific to the 1st printed edition, December 2, 2009.**

To:

California Marine Life Protection Act Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311 Sacramento, CA 95814  
<http://www.dfg.ca.gov/mlpa>  
[MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov)

From:

Tomas DiFiore  
POB 612 Little River  
CA 95456-0612  
Member - Albion Harbor Regional Alliance

All comments follow prescribed format of:

“Comments are most helpful if they are provided as a bulleted list, with page numbers and paragraphs identifying specific portions of the document. Additionally, suggestions are welcome for new sources of information that may be referenced in the revised version of the document. Comments will be incorporated to the extent possible and a revised version of the regional profile will be produced as an additional resource for developing marine protected area proposals.”

Comments begin with

- 1) page numbers and paragraphs,
- 2) paragraph or charts are quoted or referenced,
- 3) concerns, questions and comments are led by three asterisks (\*\*\*) and may be interspersed between sourced data for connectivity of concern (“suggestions are welcome for new sources of information”) and begin with (!!!).

While this may seem a long way around to a point, the NC Draft Regional Profile is scattered in it's organizational structure and distant relevant sections regarding the very same ecosystem components are portioned throughout the document. In this document, Live links will also be incorporated into these comments occasionally as all MPA, MLPA, and MLPai data and outreach is facilitated through the digital medium including the Proposals use of MarineMap and Google Earth. Links are active going to related audio, video, PDF, document, digital file types or media.

**Special Closures Impacts To Boating (all vessels) swimming, kayaking, surfing....**

*A background primer: Specific questions on pgs 12-13*

Letter on record NCCRSO Sunday, April 13, 2008

“We strongly feel that the new Stornetta Ranch public access remain open to abalone diving and fishing, since \$1 million from the Sportfish Restoration Act Fund – an excise tax paid by anglers on tackle and fishing gear – paid for this conservation land purchase. The port of Point Arena is an important cultural and historical resource and it's important to many recreational anglers and divers to keep that pier open and functioning in the future. We ask that Point Arena be given consideration for the fragility of its infrastructure. We hope you will keep these considerations in mind as you deliberate upon the final regulations.”

“We have two recommendations that apply to all of the proposals before you.”

- #1. “Special Closures: These regulations appear to be a mighty stretch from the original intent and the letter of the MLPA statute. The regulations apply to wildlife resources already protected fully by state and federal laws. These wildlife resources are located above the mean high tide mark and are beyond the scope of the Act. We urge you to remove all references to these special closures in all of the MLPA alternatives.”

- #2. “State Marine Parks: California's Department of Parks & Recreation has played an odd role in the regional stakeholder group, as stakeholders, as regulators and as enforcement authority. The RFA wrote to the Department about their policy on marine reserves located at important public access sites, but we received no reply, and cannot find any reference in the State Parks and Recreation Commission's minutes reflecting any discussion about MLPA policy where the public users of the state park system could have weighed in with comment. Several of the alternatives contain MPAs designated as proposed "State Marine Parks" and we ask that these be designated as State Marine Conservation Areas with the same regulations. This would streamline the regulatory authority of the MLPA and remove a quirk in the original legislation that grants the State Parks and Recreation Commission a say in fishing regulations. This change would place sole authority for fishing regulations in the proposed MPAs under the Fish and Game Commission, without altering the goals, objectives or regulations for these MPAs. Our representatives on the North Coast Regional Stakeholder Groups were unanimous in their support of alternative 2 XA for the north-central region. The Recreational Fishing Alliance asks you to give strong consideration for the final adoption of this alternative later this year.”

Jim Martin  
West Coast Regional Director  
The Recreational Fishing Alliance  
P.O. Box 2420  
Fort Bragg, CA 95437

Before “special closures” were defined in the NCCRS and SAT workgroup-

“The proposed MPA would protect a productivity and biodiversity hotspot in central California. The area between Pigeon Point and El Jorro Point contains multiple habitat types, including an important upwelling plume that provides nutrients for Monterey Bay, results in large amounts of primary and secondary production, and supports important fishes, marine mammals and seabirds further up the food web. Año Nuevo Island (ANI) and the surrounding islets and cliffs provide breeding and haulout habitat for over 18,000 marine mammals and 9,000 seabirds, including the threatened Steller Sea Lion, endangered Brown Pelican, and species of special concern such as Rhinoceros Auklet, Cassin’s Auklet and Ashy Storm-Petrel. California Current endemics Brandt’s Cormorant and Western Gull also have large breeding colonies there. Coastal kelp forests, eelgrass beds, rocky reefs, and both hard and soft substrates in this area provide habitat for the threatened Southern Sea Otter and overfished groundfish species (*Sebastes* spp., lingcod), as well as foraging opportunities for other marine mammals, birds.”

!!! From 2003

**PRBO** Conservation Science provided information and coordinated information from other sources listed below. Contact at PRBO is Julie Thayer, seabird & fish researcher,

**CEQA** requires all public agencies in the State to evaluate the environmental impacts of projects that they approve or carry out. If there are potentially significant environmental impacts, most agencies satisfy this requirement by preparing an Environmental Impact Report (EIR). If no potentially significant impacts exist, a Negative Declaration (ND) is prepared. However, an alternative to the EIR/ND requirement exists for State agencies with activities that include protection of the environment as part of their regulatory program. Under this alternative, an agency may request certification of its regulatory program from the Secretary for Resources. With certification, an agency may prepare functional equivalent environmental documents in lieu of EIRs or NDs. The regulatory program of the Fish and Game Commission has been certified by the Secretary for Resources. Therefore, the Commission is eligible to submit an environmental document in lieu of an EIR (CEQA Guidelines Section 15252). The Department and the Commission hold the public trust for managing the State's wildlife populations. That responsibility is fulfilled by a staff of experts including experts in marine resources management and enforcement issues related to the harvesting of kelp resources. The knowledge and training represented by that expertise qualifies them to perform the review and analysis of the proposed project contained in this document.

**Permanent closure areas** have been established in certain waters of the state for species that have been determined to have limited populations or distribution or when continued fishing pressure could be detrimental to the resource. These areas have been set aside as reserves by both the Commission and the Legislature (section 630, Title 14; sections 1580 to 1584, 10500 to 10514, Fish and Game Code) (Smith and Johnson, 1989). Such reserves are generally established to protect selected forms of marine life, or areas of special biological significance.



The Commission has established two types of reserves: reserves where the taking of all forms of marine life is prohibited and reserves where limited consumptive uses are authorized. Marine reserves established by the Legislature generally allow for the take of specified fish, invertebrates and marine plants; but the Legislature has also established four refuges where only researchers, licensed by specified educational institutions, can remove invertebrates or marine plants. In 1972, legislation known as the "Tidal Invertebrate Act" (Smith and Johnson, 1989) was enacted to extend protection to all marine invertebrates along the entire California coast between the high tide line and 1,000 feet offshore. Marine invertebrates not utilized historically for food may not be taken in that area except under special collecting permits. Those species, however, for which the Commission has established seasons and bag limits to protect their stocks, may be taken within 1,000 feet of the low tide mark.

The net effect of the "Tidal Invertebrate Act" is that we now have only minor differences in the authorized uses of refuges and reserves established by Legislative act and Commission regulations.

In addition to this policy, the Legislature has provided further direction for the management of kelp resources in Chapter six (§6650 through §6751) of the Fish and Game Code (Appendix 1). The Legislature has delegated authority to the Commission to establish regulations to ensure the proper harvesting of kelp and other aquatic plants through §6653 of the Fish and Game Code. In addition, the Commission has the authority to regulate the taking, collecting, harvesting, gathering, or possession of kelp for purposes other than profit (§6750, Fish and Game Code; Appendix 1).

[http://www.dfg.ca.gov/marine/kelp\\_ceqa/chapter2.pdf](http://www.dfg.ca.gov/marine/kelp_ceqa/chapter2.pdf)

!!! Evaluations follow the methods described in "Methods Used to Evaluate MPA Proposals in the North Central Coast Study Region March 31, 2008". The document analyzes benefits to 1) breeding areas, 2) resting areas, and 3) foraging areas. We also assess the benefits from "special closure areas" that were added to the proposals to reduce disturbance to some marine bird and mammal colonies by restricting access to the area surrounding the colony. The special closures were buffered areas around features such as islands or headlands at either a 300ft or 1000ft distance where all activities in addition to fishery activities would be restricted, such as kayaking or whale watching.

For comparison...

!!! Page 1

Five species of pinnipeds occur in the region (Steller sea lion, California sea lion, northern elephant seal, harbor seal, and northern fur seal). The total number of mammals counted at @ 42 rookeries within the North Central Coast Study Region (NCCSR) is 9,296 and is broken down by species in Table 1. The total number of pinnipeds counted at @ 76 haul out areas in the study region is 17,887 and is broken down by species in Table 2. Harbor seals are the most

abundant and wide spread species on the mainland and will be the species most likely to benefit from MPAs. Harbor seal numbers are almost equally divided between the north and south regions during the non-breeding season, but few harbor seals occur on the Farallon Islands. During the breeding season, harbor seals are more abundant in the southern region, using remote sites to breed such as at Double Point and Drakes and Limantour Esteros. Although California sea lions do not breed in the area except for a few animals on the South Farallon Islands, large numbers of non-breeders occur on the Farallon Islands, at Point Reyes Headland and Bodega Rock, and at several sites in the North Subregion. Northern elephant seals occur only at the Farallon Islands and Point Reyes Headland. Steller sea lions, a federally listed threatened species, breed mostly on the Farallon Islands, but small groups also breed in the north subregion on islets just north of Fort Ross. They also haul out at in small numbers at Fish Rocks in the north subregion and around Pillar Point in the south subregion.

*from*

**!!! Draft EVALUATIONS OF BENEFITS TO MARINE MAMMALS FROM PROPOSED MARINE PROTECTED AREAS IN THE MLPA NORTH CENTRAL STUDY REGION, CALIFORNIA**

Sarah Allen  
MLPA Master Plan Science Advisory Team  
May 18, 2008  
Page 3

*Just two days earlier...*

**EVALUATIONS OF BENEFITS TO SEABIRDS AND WATERFOWL FROM PROPOSED MARINE PROTECTED AREAS AND SPECIAL CLOSURES IN THE MLPA NORTH CENTRAL STUDY REGION, CALIFORNIA**

Gerard J. McChesney  
MLPA Master Plan Science Advisory Team  
DRAFT FINAL  
16 May 2008

Seabirds and other waterbirds may benefit in several ways from marine protected areas in the NCCSR. For example, most species are known to be sensitive to human disturbance to varying degrees (summarized in Carney and Sydeman 1999). Impacts of human disturbance are known to be greatest at breeding sites, where reproduction can be dramatically affected. Because most seabirds are colonial breeders (e.g., nesting in high concentrations), high proportions of populations can be affected by severe or frequent disturbances. Similarly, seabirds and other waterbirds often concentrate at resting sites ("roosts") and foraging areas where they can be sensitive to disturbance (e.g., Jaques et al. 1996, Kuletz 1996, Rodgers and Schwikert 2002, Jaques and Strong 2002, Speckman 2004, Peters and Otis 2006).

Because of these sensitivities, many observers have recommended disturbance-free "buffer

zones” or other management actions around colonies, roosts, or important foraging areas (Carney and Sydeman 1999, Jaques and Strong 2002, Rodgers and Schwikert 2002, Ronconi and St. Clair 2002). At seabird and other waterbird breeding colonies, roosts, and foraging areas, impacts to birds tend to be most pronounced when humans enter the immediate area. Responses vary by species and location, but for many species, intrusion results in most if not all birds fleeing from the immediate area. Birds on nests often will flee, leaving the eggs or chicks behind. During that time, nest contents are susceptible to predators such as gulls. While some birds return to nests once an intruder has gone, others tend to abandon nesting efforts. For example, Brandt’s Cormorants have been observed to abandon nests en masse from even single events of human intrusion to the colony (McChesney 1997). Many studies have documented reductions in breeding success and colony attendance, as well as colony abandonment, resulting from human intrusion (Carney and Sydeman 1999). Birds disturbed at foraging areas can incur high energetic costs, with high energy utilization spent while fleeing and reduced energy intake because of lost foraging time. Thus, disturbance can lead to low fitness of individual birds, leading to abandonment of popular foraging areas or starvation (Davidson and Rothwell 1993).

Seabirds and other waterbirds also may benefit from MPAs if increases in their forage base occur as a result of the MPAs. Since the seabird species most likely to benefit mainly forage on juvenile fish, increased recruitment of prey species would be a needed result to benefit these seabird species. These species are sensitive to changes in prey availability that can have dramatic effects on breeding success,....

Evaluations include numbers of species (species diversity), numbers of birds, and percentages of subregional populations breeding within each MPA proposed (Tables 2-6) and subregional totals for each draft MPA proposal (Table 7). A comparison of proposals is also provided. In this document, percentages cited are the percentages of the subregional populations. Seabirds were examined on the subregional level because of substantial differences in species abundances between subregions.

However, one breeding species, the threatened Marbled Murrelet, is not included because these birds nest inland in old-growth forests.

These surveys were conducted in the fall during the period of peak pelican abundance. Since pelicans often share roost sites with other seabirds, roost sites for the Brown Pelican were used as a surrogate for all seabirds. Pelicans also serve as a good indicator species for roosts because of their high sensitivity to disturbance (Anderson and Keith 1980, Jaques et al. 1996, Jaques and Strong 2002, Rodgers and Schwikert 2002). In the recovery plan for the endangered California Brown Pelican, protection of roost sites was identified as a primary objective (USFWS 1983).

Data for this evaluation were obtained from a summary of major pelican roosts between Bodega and Cambria (San Luis Obispo County) prepared for the Gulf of the Farallones

National Marine Sanctuary, augmented with additional data from roosts between Bodega and Point Arena (D. L. Jaques, Pacific Eco Logic, Astoria, Oregon, unpubl. data). Data were available for major roosts (i.e., >100 birds) only and categorized as: >100 birds; >500 birds; or >1000 birds. Evaluations were based on the numbers of major roosts in each roost size category included within each proposed MPA. MPA categories were treated the same as for Seabird Breeding Colonies (above).

The favored foraging habitats for Pelagic Cormorants and Pigeon Guillemots are among submerged reefs, where they feed on juvenile rockfish, other small fish, and certain invertebrates (Ainley et al. 1990; Appendix 2). Brandt's Cormorants feed over a variety of habitats, including submerged reefs and soft bottom habitats, but prefer midwater depth zones over soft bottom where they feed on a wide variety of prey including juvenile rockfish, anchovies, Pacific tomcod, sanddabs, and squid (Ainley et al. 1990, Wallace and Wallace 1998; Appendix 2). Because of their lower dependency on prey such as rockfish and ability to feed on more mobile prey such as anchovies, Brandt's Cormorants may not benefit from the MPAs proposed as much as Pelagic Cormorants and Pigeon Guillemots. Species that were not evaluated typically forage more widely, often beyond the 3-mile state limit, and on more mobile prey such as anchovies and sauries, or krill (Ainley et al. 1990). Exceptions to this are the Double-crested Cormorant and the federally threatened Marbled Murrelet. Coastal breeding Doublecrested Cormorants are localized and forage mainly on fish in estuarine habitats (Ainley et al. 1990).

The southernmost population of the Marbled Murrelet nests inland in old-growth forests of the Santa Cruz Mountains, near the southern limit of the NCCSR. Birds forage in adjacent nearshore habitats, mostly on juvenile fish and krill (Becker et al. 2007). Murrelets may benefit from MPAs if recruitment and availability of their preferred prey (e.g., juvenile rockfish) increase as a result of MPAs. Also, murrelets can be impacted from boat disturbance at foraging areas (Kuletz 1996, Speckman et al. 2004), so reductions in boating activity may provide benefits to the species.

The three mile by one mile colony buffers were overlaid with proposed MPAs and the area of overlap determined. For each species, proportions of the foraging range overlapping MPAs were then weighted based on the proportion of the subregional population breeding at that colony. Final weighted values are reported. MPA categories were treated in a similar fashion as for Seabird Breeding Colonies (above). Because these seabirds will benefit most from protection of prey species most likely to benefit (i.e., less mobile groundfish), SMCAs not permitting fishing of groundfish were considered beneficial for improving seabird forage base. MPAs permitting take of pelagic wetfish (e.g., anchovies, sardines, squid) may decrease forage base for certain species of seabirds, including the Brandt's Cormorant. However, since pelagic wetfish are not considered species most likely to benefit from these MPAs because of their highly mobile behavior, SMCAs allowing take of wetfish were still considered beneficial to the seabird species evaluated.

### Wintering Waterfowl

The coastal estuaries of the NCCSR are recognized for high diversity and abundance of waterfowl, with migrant and wintering populations numbering in the tens of thousands (Shuford et al. 1989; Kelly and Tappen 1998; USFWS, unpubl. data). Since the 1980s, the U.S. Fish and Wildlife Service has conducted an annual aerial survey of wintering waterfowl (swans, geese and ducks) in the following NCCSR estuaries: Bodega Bay; Tomales Bay; Abbott's Lagoon; Drakes and Limantour Esteros (combined); Bolinas Lagoon; and Rodeo Lagoon. Although these surveys likely underestimate population sizes of at least some species (Kelly and Tappen 1998), they provide the most comprehensive data set available for this evaluation.

Seabird Foraging Areas Weighted contributions to seabird foraging areas for species most likely to benefit are summarized for each draft MPA proposal in Tables 11-15, and comparisons between draft MPA proposals are shown in Table 16. Because foraging areas were based on breeding colony data, comparisons among proposals were similar to breeding colony comparisons (above). North subregion – Total weighted foraging areas for new MPA proposals ranged 1.0-1.19 for Brandt's Cormorant, 0.75-1.61 for Pelagic Cormorant, and 0.56-0.89 for Pigeon Guillemot (Table 16). For Pelagic Cormorant and Pigeon Guillemot, overall values were highest in Proposal 4. For Brandt's Cormorant, values were nearly equal in Proposals 1-3, 4 and IPA. Values were lowest for all species in Proposal 2-XA. Values in Proposal 0 were much lower, ranging 0.0-0.09. Coverage of Brandt's Cormorant foraging areas mainly occurred in the Bodega Head area where a large colony occurs on Bodega Rock. For Pelagic Cormorants and Pigeon Guillemots, highest values occurred mainly in the Point Arena and Black Point to Stewarts Point areas. Compared to the South and Farallon subregions, weighted foraging areas were low in the North subregion because fewer large seabird colonies occurred within proposed MPAs. Values were also lower than in the previous draft ("round 2") of proposed MPAs.

*South subregion* – For all species in new proposals, Proposal 4 had the highest and the IPA had the lowest weighted foraging area values. Weighted foraging areas ranged 3.11-4.91 for Brandt's Cormorant, 2.37-3.56 for Pelagic Cormorant, and 3.63-4.98 for Pigeon Guillemot. Higher values in Proposal 4 mainly reflected the larger MPA at Double Point. Among individual proposed MPAs, the Point Reyes SMR (all proposals) provides the highest foraging area values (Tables 11-15). Proposal 0 covers much less foraging area, with none included in totals because of allowed take in all current MPAs.

Although waterfowl densities in northern Tomales Bay are among the highest in the study region (Kelly and Tappen 1998), no MPAs are proposed for that area. Disturbance to birds from increasing numbers of sportfishing and other recreational boats, disturbance to eelgrass beds, and overharvest of Pacific herring are concerns in this area (Kelly and Tappen 1998). If shellfish harvest and mariculture are discontinued in Drakes Estero in the future, waterfowl wintering there will receive the benefits equivalent of an SMR.

### Special Closures

Seabird colonies with proposed special closures, including closure distances, are shown in Table 8. Of the 20 largest breeding colonies in the NCCSR, six have been proposed for special closures with small to moderate differences between proposals. All new proposals are for year-round closures, which protect seabirds during the breeding season (March to September) and during the fall and winter when large numbers of pelicans, cormorants, and gulls roost on shore and when Common Murres frequently attend their colonies.

In the North subregion, Proposal 4 provides the only proposed special closure, with 300 foot closures surrounding both Arched and Gull Rocks just south of the Russian River mouth. These closures will help protect two of the largest seabird colonies and roost sites in the North subregion where disturbance from boating activities may cause impacts. Year-to-year movement of the cormorant colonies in this area (USFWS, unpubl. data) may reflect responses to disturbance.

In the South subregion, all proposals include closures surrounding Stormy Stack (within Double Point Rocks; 300 feet) and Devil's Slide Rock (300 or 1,000 feet). Proposals 1-3, 4 and IPA include special closures at Point Reyes (1,000 feet), the largest colony in the subregion and third largest in the NCCSR.

Proposals 1-3, 2-XA, and IPA contain special closures at Point Resistance (500 feet in 1-3, 300 feet in 2-XA and IPA). All colonies with proposed special closures in the South subregion contain nesting Brandt's Cormorants and Common Murres and are important roost sites for Brown Pelicans (Appendix 1), three of the most sensitive species to boat disturbance. Although the Point Reyes proposed closures cover much of the seabird nesting area, they do not cover the largest concentration of seabirds (mainly Common Murres, Pelagic Cormorants, and Pigeon Guillemots) at the west end of the headlands.

At Devil's Slide Rock (also known as Egg Rock), the IPA combined the 300 and 1,000 foot closures from Proposals 1-3, 4, and 2-XA to create a closure of 300 feet around the seaward side of the rock while keeping the landward side closed to access. Observations from seabird monitoring at Devil's Slide have documented several boat disturbances to the colony (U.S. Fish and Wildlife Service, unpubl. data). The colony has been especially sensitive to boats occurring within 300 feet and between the rock and the mainland, although boats rarely (usually kayaks) pass through this latter area. Thus, the IPA closure would provide reasonable protection to the colony while allowing for easier transit passed the rock by non-motorized boats.

In the Farallon subregion, new proposals were similar but varied somewhat. All proposals would assist protection of the two largest seabird colonies in the NCCSR, and extend upon the current seasonal closures of the Farallon Islands SMCA (Proposal 0) by covering more area and are year-round in most areas. However, none of the new proposals include the current noise restrictions and vessel speed limits that are included to help further reduce colony disturbances. At the North Farallon Islands, the only differences between new proposals was whether the

North Islet (“North Farallon”) was surrounded by a 300 foot or 1,000 foot closure, with 300 foot closures at the other three islets (“Isle of St. James”). All the North Farallon Islands contain large numbers of nesting murres, and greater distances would provide added protection from disturbance. All proposals provide greater protections to seabirds than the current closures of the Farallon Islands SMCA (Proposal O), which does not restrict access off the east side of North Farallon or the East Islet of the Isle of St. James.

On North Farallon, almost the entire murre colony (*ca.* 7,000 birds) occurs on the east side of the islet. The East Islet hosts about 23,000 breeding murres. a high level of protection MPA because those MPAs will likely lead to reduced boating activity. However, MPAs will not protect colonies from recreational boating activities, transiting anchoring, or other non-take activities. While seasonal closures during the breeding season protect colonies during their most critical time of year, most colonies are attended by seabirds most of the year either for breeding site defense (murres, cormorants), colony prospecting, or roosting (e.g., pelicans, cormorants, gulls). Also, Brown Pelicans, which breed outside the study area, reach peak abundance during the fall months. Thus, the year-round closures proposed will provide considerably higher benefits to seabirds than seasonal closures.

Closure distances of 300 feet are lower than what is often recommended for protection of seabird breeding and roosting sites (Carney and Sydeman 1999, Jaques and Strong 2002, Rodgers and Schwikert 2002, Ronconi and St. Clair 2002). For example, closures at Three Arch Rocks, Oregon, and Protection Island, Washington, are 500 feet and 600 feet, respectively. Studies at Common Murre colonies in the NCCSR have shown that about 68% of boat disturbances occurred within about 300 feet of colonies, 70% within about 500 feet, and 92% within about 1,000 feet (U.S. Fish and Wildlife Service, unpublished data). Thus, 300 foot closure distances should eliminate the majority of disturbances and 1,000 foot closures should eliminate nearly all boat disturbances to murres and most other species.

!!! Going back to 2005, the words “Special Closure” were not yet part of the lexicon of Linguistics used in the **California Marine Life Protection Act Initiative**

**To:**

***MLPA Blue Ribbon Task Force***  
*November 29-30, 2005 Meeting*  
*Overview MPA Package C*

**Re:**

***Marine Life Protection Act Initiative***  
Central Coast Project  
Proponent Rationale  
Candidate MPA Package C  
November 21, 2005

***A Proposal for a Network of Six State Marine Reserves and Two State Marine Conservation Areas in the Central California MLPA Study Region***

Dan Robinette, Julie Thayer, and Julie Lanser

Marine Ecology Division, PRBO Conservation Science

**!!! *The objective of this proposal is to establish a network of Marine Protected Areas*** (MPAs) throughout the central California MLPA study region. Fish and invertebrate species that will benefit from this MPA network are on state and federal lists of “overfished”, threatened, and endangered species (Table 1). Additionally, the MPA network will contain areas that are ‘hot spots’ for foraging seabirds and marine mammals and will therefore be protecting areas of high trophic transfer.

Creating a network of MPAs will address requirements of the Marine Life Protection Act (MLPA) by protecting the natural diversity and abundance of marine life and helping to sustain, conserve and protect populations of exploited species of the central California coast. Additionally, creating a network of multiple large MPAs across a large stretch of coast (as opposed to creating only one MPA along the same stretch of coast) will help protect the structure, function, and integrity of a coastal marine ecosystem. Furthermore, this network of MPAs will help fulfill the requirements of the Marine Mammal Protection Act by protecting critical foraging and haul-out habitat of harbor seals, elephant seals, Steller sea lions and California sea lions. Finally, it will help fulfill the requirements of the Endangered Species Act by protecting roost/haul-out and foraging habitat of the California Brown Pelican and Steller sea lion, breeding and foraging habitat of the California Least Tern and Western Snowy Plover, foraging habitat of the Southern sea otter and Marbled Murrelet, and coastal habitat of the Chinook salmon.

**!!! MLPA North Central Coast Project *Memo regarding characterization of special closure options March 12, 2008***

*Hot spot geographic name* – Hot spots include areas of high diversity and abundance for marine birds and mammals. Nineteen geographic areas were originally identified by the disturbance work group and two SAT members at their meeting on January 8, 2008. In this version of the special closures menu, we have retained only the marine bird and mammal hotspots for which the disturbance work group generated special closure options, although we still recognize that the work group identified the need for an enhanced educational program exceeding the status quo at all hot spots.

*Proposed options* – The special closure options generated by individuals in the disturbance work group, which would prohibit or limit human access to marine bird and mammal hot spots within a specific distance.

*Seasonality* – The proposed annual duration of the special closure option, corresponding with the time that the area is used by marine birds and mammals for nesting and breeding.



**Conservation benefit** - (“low”, “medium”, and “high” and rationale for characterization) - the significance of the marine bird and mammal populations to be protected (e.g. in terms of diversity, abundance, and conservation status).

**Feasibility** - (“low”, “medium”, and “high” and rationale for characterization) implementation considerations such as safety, enforcement, and conflicts with existing human uses. (Note to disturbance work group: we originally asked for a characterization of “feasibility concern”, which caused some confusion among respondents. We have recast this as simply “feasibility” for greater ease of understanding and have adjusted your responses to reflect this (e.g., we considered “low” responses for “feasibility concern” to equate with a “high” characterization for “feasibility”).)

**Human uses potentially impacted** – The current known human uses that would be denied or have restricted access within a discrete area should a special closure be implemented.

**Species involved** – Species and number of breeding birds and mammals, including specific location within hotspot.

**Rationale for closure** – Identification of current or foreseeable disturbance threat and why current regulations (if any) are not sufficient to address threat.

**Site-specific comments, questions, or information** – Additional site-specific information on existing research and monitoring, notes on disturbance work group deliberations, other interests potentially impacted by potential closure.

### **General comments**

Feedback from disturbance work group members who provided general feedback on special closure options rather than a site-specific characterization.

### **Use of characterized menu of special closure options**

NCCRSG members should consider the attached menu of special closure options while crafting proposals for MPAs in the North Central Coast Study Region. The options should be considered in conjunction with the CDFG memorandum regarding use of special closures (dated November 1, 2007) and the BRTF directive that special closures be used both sparingly and to the extent that they do not detract from the creation of alternative MPA proposals. Stakeholders might consider most closely those special closure options that receive "high" characterization for both conservation benefit and feasibility, also recognizing the rationale for each option as well as potential impacts to human use. Options with more than 3 responses for a “low”, “medium”, or “high” categorization are shaded in the special closures options menu.

**\*\*\***For how long were data sets available before the NCCRSG MPA Array Proposal Process Special Closure proposals were finalized on March 19, 2008 by a work team of the MLPA North Central Coast Regional Stakeholder Group (NCCRSG)? What are the North Coast

Region's "Special Closure" criteria?

Special Closure proposals that were submitted to the MLPA Blue Ribbon Task Force for consideration and further information on each Special Closure proposal can be found in the associated text document with the same Special Closure proposal name.

At the bottom of each map this is stated. "This map represents a special closure proposal from the MLPA North Central Coast Regional Stakeholder Group for review and consideration by the MLPA Blue Ribbon Task Force; it is NOT a recommendation to the California Fish and Game Commission."

*Except one.... this particular map is the June 11th "approved"* Fish and Game Commission Map titled the Integrated Preferred alternative. Notice the stamp "approved", on June 11<sup>th</sup>, 2009. The commission meeting was not until August.

Just as important, reading back from pg 4, 3, 2, 1; Special Closures begin to appear by March 19<sup>th</sup>, 2009. Submitted in each proposal were "Special Closure" Areas. But the IPA map is the only map that has an "Approved" stamp of 061109.

MarineMap data for the North Coast has extensive data layers for pinnipeds, mammals, and birds – rookeries, foraging areas, and haulouts are dotted up and down the coastline in all 3 counties.

\*\*\*Is there a numerical percentage of total birds or nesting sites, and marine mammal or pinnipeds haulout sites that will be required to be protected by "Special Closures"?

\*\*\*Are these "Special Closures" areas that are calculated as a percentage of landscape dimension? Available foraging grounds? Enforcement feasibility? Public access and levels of disturbance?

\*\*\*Are mouths of rivers and estuaries, without ports, or docks, to be considered differently than rivers with ports and dock infrastructure regarding Marine "Special Closures"?

\*\*\*How will "Special Closures" be handled where there are offshore rocks and sandy beach with easy public access? Will the percentage of these area (situations) which are a feasibility criteria (policy decision) be weighted across the entire study region or biogeographic sub region? Or within each bioregion?

\*\*\*Will "special closures" be used in one biogeographic sub-region to compensate for lack of feasibility in another biogeographical sub-region?

Referenced map document can be downloaded [here](#)  
(1.7 MB PDF) NCCRSG and commission IPA Special Closures 4 pgs

Respectfully submitted  
Tomas DiFiore



# InterTribal Sinkyone Wilderness Council

P.O. Box 1528 Ukiah, CA 95482 Phone (707) 468-9500

## InterTribal Cultural Conservation for Sinkyone Indian Lands



January 14, 2010

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### STAFF

**Hawk Rosales**  
Executive Director

**Jaune Bar**  
Administrative Assistant

**Ken Wiseman**  
MLPA Initiative  
California Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, California 95814

Sent via mail, facsimile, and email

Re: Request for Extension of Time to Comment on the *California Marine Life Protection Act Initiative Draft Regional Profile of the North Coast Study Region*

Dear Mr. Wiseman:

It was a pleasure for our Executive Director Hawk Rosales to meet with you at the North Coast Tribal Coalition Meeting at the Yurok Reservation on January 8, 2010. We appreciate your willingness to meet with us concerning our efforts to ensure that the MLPA Initiative protects the right of Native people in the North Coast Region to continue to use marine resources for traditional subsistence and other cultural purposes.

We are writing on behalf of the InterTribal Sinkyone Wilderness Council to request an extension of time to submit comments and revisions to the *Draft Regional Profile of the North Coast Study Region*. The Council is comprised of the following federally-recognized Indian Tribes: Cahto Tribe of Laytonville Rancheria; Coyote Valley Band of Pomo Indians; Hopland Band of Pomo Indians; Pinoleville Pomo Nation; Potter Valley Tribe; Round Valley Indian Tribes; Scotts Valley Band of Pomo Indians; Redwood Valley Band of Pomo Indians; Robinson Rancheria; and Sherwood Valley Band of Pomo Indians. Each of these sovereign Indian Tribes has significant interests in continuing their uses of the marine resources and coastal areas encompassed within the boundaries of the Initiative's North Coast Study Region.

We request a six-week extension to and including February 26. The original short time period within which to submit comments has not allowed sufficient time for the Council and the Tribes of the North Coast region to develop and prepare their comments. The draft was released for public comment on December 2, 2009, shortly before the holiday season began. The entire review period was only approximately six weeks. Our initial review showed that substantial revisions would be required in order to accurately and thoroughly document and present the Council's views and interests, as well as those of the various Tribes and Indian communities located within the North Coast Study Region. Additional time is needed to develop and prepare our proposed revisions to the Draft Profile. We realize that the Initiative is moving forward on short time frames, but we caution against the temptation to sacrifice accuracy and thoroughness for speed. The Initiative will produce a better, more defensible result if the final array proposals are based on accurate and complete facts about the Indian Tribes whose ways of life are implicated by the Initiative.

InterTribal Sinkyone Wilderness Council is a Nonprofit Consortium of California Indian Tribes

• Cultural Conservation • Native Stewardship • Watershed Rehabilitation • Cultural Ecology Education

InterTribal Sinkyone letter to Ken WisemanJanuary 14, 2010

We are preparing and will submit to you by January 15 a brief outline of our main areas of concern. This outline will contain the most salient points that we wish to expand upon within a more comprehensive Comment document that will require additional time to develop and submit.

For these reasons, we respectfully request an additional six weeks to submit comments and proposed revisions to the *Draft Regional Profile of the North Coast Study Region*.

Thank you for your consideration.

Sincerely,



Priscilla Hunter  
Chairperson



Hawk Rosales  
Executive Director

cc: Alexander, Berkey, Williams & Weathers LLP  
Yurok Tribe

From: Carrie Pomeroy  
Sent: Friday, January 15, 2010 10:39 PM  
To: MLPAComments  
Cc: Susan C. Schlosser; 'Jim Waldvogel'; Carrie Pomeroy  
Subject: Comments on the Draft Regional Profile of the North Coast Study Region

Dear MLPA Initiative Staff,  
Thank you for the opportunity to review the 12/2/09 Draft Regional Profile of the North Coast Study Region. Attached please find a file with my comments.

Please contact me if you have questions or require further information.

Regards,  
Carrie Pomeroy

--

Caroline Pomeroy, Ph.D.  
Marine Advisor  
California Sea Grant  
UCCE Santa Cruz County



## UNIVERSITY of CALIFORNIA COOPERATIVE EXTENSION

Carrie Pomeroy, Marine Advisor  
Sea Grant Extension Program  
1432 Freedom Blvd  
Watsonville, CA 95076-2796

Santa Cruz County  
Email: [cmpomeroy@ucdavis.edu](mailto:cmpomeroy@ucdavis.edu)  
Phone: (831) 763-8002  
Fax: (831) 763-8006



January 15, 2010

MLPA Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

Dear MLPA Initiative Staff,

Thank you for the opportunity to review the Draft Regional Profile of the North Coast Study Region. Below please find my comments. I focused especially on Chapter 5: Socioeconomic Setting, but also offer a few more general comments and offer limited comments on other sections of the profile. My comments are based on my experience as a social scientist conducting research on the state's marine fisheries for 15 years and in particular, on north coast fisheries and fishing communities (funded in part by the State Coastal Conservancy) since mid 2007.

Please contact me if you have questions or would like to discuss the input that follows.

Sincerely,

A handwritten signature in black ink that reads "Carrie Pomeroy".

Carrie Pomeroy, Ph.D.  
Marine Advisor, California Sea Grant Extension Program  
[cmpomeroy@ucdavis.edu](mailto:cmpomeroy@ucdavis.edu), 831-459-4173

## General comments

Although the profile provides considerable background information, it misses a few key features of the north coast region, its human communities, and their long-standing interdependence with the marine environment. The profile would benefit from:

- (long-term) historical context of marine activities and resource use and their role in shaping the region's coastal communities, their values and activities;
- basic description of the ports and harbors, infrastructure (in addition to launch ramps enumerated in the profile) that link people to the marine environment; and
- general descriptions of fisheries from a socioeconomic/human dimension perspective to complement descriptions from a biophysical perspective.

Whereas some of the specifics of these topics may be beyond the scope of this profile, attention to the general concepts and available information would significantly enhance the utility of the profile. I would be pleased to discuss this further with staff, and can provide some of this information based on our recent and ongoing research in the region.

## Specific comments

### Executive Summary

p. x: socioeconomic setting, bullet 2, lines 2-3 – major ports King Salmon, Fields Landing and some others would not be viewed as "major." Historically, these places were very important. Although some activity continues at both sites today, it is a fraction of what it was historically.

p. xi: line 2: Edit to read, "The Dungeness crab fishery was the commercial fishery with the highest ex-vessel value over the same period." (Ex-vessel value or revenue is not the same as profit.)

### Chapter 2

p. 5, para 2, sent 2: Edit to read "the north coast study region is not characterized by large numbers of people..."

### Chapter 4

p. 48: Note that land-sea interactions can and should be characterized in human terms beyond degradation of water quality as written in this section. Land-sea interactions also include the general interdependence between coastal communities and the marine environment, with their attendant positive and negative impacts on one another.

p. 54, para 5, sent 2 and 3: Commercial vessels are defined here as including commercial fishing vessels. However, based on our research and on other sources cited in the regional profile, well over 86 vessels are home-ported in the region. Suggested edit: delete commercial fishing vessels from the definition (sentence 2) or adjust the count of commercial vessels home-ported in the region (sentence 3).

### Chapter 5 Socioeconomic Setting

General comment: While this chapter provides useful background information, there are some critical gaps. Information about the historical context of marine resource use, especially the development and importance of local fisheries; social, cultural and economic identity of north coast fisheries and fishing communities; and local infrastructure including facilities and providers of goods and services should be included. I would be happy to provide this information based on our recent and ongoing research.

p. 64, 5.1 Coastal Counties, par 1 sent 3: edit to read: "...utilize and depend on marine resources and contribute to the economy of the North Coast study region."

p. 64, 5.1.1 Del Norte County, para 2: According to the Bureau of Economic Analysis, the government sector accounted for 47% of earnings in the county, three times the proportion of the state as a whole in 2007 (Pomeroy et al. in prep. Crescent City Fishing Community Profile).

p. 65, 5.1.2, para 1: Eureka is the largest coastal community in Humboldt County. Are Arcata and/or McKinleyville included in Eureka as it is defined here? Trinidad has a population of about 300 (Sloan & Rocha 2007 in: Pomeroy et al. in prep. Trinidad Harbor Fishing Community Profile).

p. 68-69, 5.2: Native American groups in the study region have fishing, collecting and hunting rights that follow from several court decisions over the past several decades. See Pierce 1998 for information.

p. 69, para 1: Native American groups also depend on local marine resources for livelihood.

p. 69, 5.3 Commercial Fisheries

General comments: this section provides useful information on commercial fisheries. However, it misses an opportunity to provide social, cultural and socioeconomic information about the fisheries system, i.e., not just fishermen, boats, gear and species, but also how the fisheries work, and their historical context. The information is presented very much from a biology/natural science perspective; this section can and should be framed from a human/social science perspective to help build understanding of the relevant features of the human system to MPAs.

In the Fishing Communities Section, fishery support infrastructure and the relevance of that infrastructure to the region's fisheries should be addressed. Some of this information is found later in the profile. Its inclusion here would significantly enhance the quality and value of this section.

Some information is beyond the scope of this profile. Further work to understand the socioeconomics of north coast fisheries in the context of the MLPA process should address:

- types of fishing and receiving operations
- annual rounds of fishing
- mobility of fishermen and buyers within and beyond the region
- connections among fisheries and ports
- interdependencies between commercial and recreational fisheries, and with other marine and port users
- processors, providers of goods and services, and the interdependencies among them and with the larger historical and community context.

p. 70, sent 1: The sablefish fishery is mentioned here but absent later in the document. The coonstripe shrimp trap fishery is missing here, but is noted later. Both should be addressed in this profile.

p. 70, 5.3.1, sent 3: Edit to read, "...provided there are at least 3 receivers in a port".

NOTE: throughout replace "processor" and "dealer" with "receiver" or "buyer," except for example, when referring to a business that in fact processes seafood (e.g., Caito Fisheries).

p. 71: It is unclear what the number of commercial vessels and fishermen here represents. For example, it is highly unlikely that 122 commercial fishermen participated in fisheries involving 117 commercial vessels. Does this account for skippers and crew?



Note also that the number of "processors" includes a very small number of seafood processors per se, and is comprised largely of other (non-processor) buyers and fishermen who receive their own (and perhaps others) catch. See Pomeroy et al. (in prep) for more information or contact me.

p. 75, 5.3.2: The description of commercial fisheries focuses on species and market categories, rather than on species-gear configurations and types of fishing operations as pursued by fishery participants. Whereas the former is very useful from a biological perspective, the latter is more appropriate from a socioeconomic/human dimensions perspective. The use of the former approach limits this document's ability to convey information and build understanding of the socioeconomics of fishing and fishing communities.

p. 75, Tables 5.3-2 thru 5.3-4: Clarify % of total landings – for the region, for the state? Where is sablefish? Does this include federally managed fisheries (which also occur in state waters)? Where are non-nearshore FMP groundfish (halibut, sablefish, etc.)?

p. 77, 5.3.3, para 1: Confused by reference to box crab and at times, what appears to be confounded with rock crab.

Groundfish/nearshore regulations and other factors have also significantly affected commercial fishing activity in the north coast region over past 10 years.

p. 82, 5.4.3, para 1: Private organizations granted lease to submerged (state) lands? Provide source and explain.

p. 82, 5.5, para 1, sent 1: Commercial and subsistence as well as recreational fisheries are influenced by these factors. Note that crab, abalone, clams and other invertebrate species are harvested in state waters as well. (This is noted elsewhere in the document, but seems relevant and worth mentioning here.)

p. 83, Table 5.5-1: edit title to read: "Estimated average annual recreational finfish catch (thousands of fish) in the north coast study region, 2005-2008". All tables should specify geographic scale and scope. Are halibut data available?

p. 88, 5.6 Coastal Tourism. The statewide value information presented is interesting and potentially useful, however:

- a similar contextualization of commercial and recreational fisheries should be provided, i.e., presentation of north coast fisheries' value and volume as a proportion of statewide ex-vessel value and volume (based in CFIS data), and value added/multiplier effects, e.g., as reported in Hackett.
- take care in inferring/implying value along the north coast. Coastal tourism is fundamentally different along the north coast compared to the rest of the state.
- para 2, last sent: the attribution of low travel spending in Del Norte County to the existence of fewer "theme park-type attractions" ...? Crescent City is the only incorporated place in the county; there are no other "cities."

p. 94, para 1: Some of this text is prescriptive; is this inappropriate for this profile?

p.95, para 1: These events are also important for building and asserting community identity and educating residents and visitors about local resources, activities and values.

p. 95, last para, last sent: Indicate the percentage increase in vessels.

p. 97, Table 5.7-10:

- The Chart Room Marina is actually part of the Crescent City Harbor, and slip rentals and other services

are now managed by the Crescent City Harbor District.

- The Noyo Mooring Basin is part of and operated by the Noyo Harbor District, which is also listed in this table.
- A number of private marinas such as Dolphin Isle Marina at Noyo Harbor also play an integral role in marine resource use. These, too, are worth noting.

p. 107, last bullet, p. 108, 1<sup>st</sup> bullet

The University of California Sea Grant Extension program is not a government agency, and should be listed under the university programs. The program title should be the same under each bullet. It may be worth providing a single bullet re the CA SGEP with subsections addressing the foci of the two county-based offices. Also, please add the following after the Humboldt and Del Norte Sea Grant offices' program paragraphs:

In addition, California Sea Grant staff based in central California (in collaboration with a NOAA Fisheries economist) have been conducting social science research in collaboration with fishing community members and others to build historically grounded profiles for the four major north coast fishing ports and communities (i.e., Ft. Bragg, Eureka, Trinidad and Crescent City) (Pomeroy et al. in prep.).

p. 114: add the following web address: <http://www-csgc.ucsd.edu/EXTENSION/HumboldtBayEBM.html>

p. 129, para 2, second to last sent: Edit to read: "the unique character of the north coast's marine and human communities."

p. 129, bullets: Historically, the salmon fishery played a central role in the region's commercial and recreational fisheries. For Ft. Bragg (and to a lesser extent Eureka), that is still the case, and for the Eureka, Trinidad and Crescent City fishing communities, the fishery is still central to their thinking and identity. Other groundfish fisheries carried out in state waters (and in many cases federal waters) in addition to the nearshore fishery are also important in social and economic terms. (See Pomeroy et al. in prep.)

p. 137, Table B-1: Although not as common on the north coast as further south, trap fishing for nearshore species does occur; add to table. Add blackcod longlining.

p. 138-140, Tables B-2, B-3, B-4.

- Clarify/define terms/data used here. Is "Fishermen 2008" the number of licenses issued to people with north coast region addresses? Fishermen listed on fish tickets? Something else? Similar questions pertain to "Vessels 2008."
- Provide totals.

pp. 156-159, Figures C-1 – C-6: Provide Ns to contextualize/ground percentages.

### References cited

Hackett, Steven, D. King, D. Hansen, and E. Price. 2009. The Economic Structure of California's Commercial Fisheries. Technical Report. California Department of Fish and Game, Sacramento. <http://www.dfg.ca.gov/marine/economicstructure.asp> (report)

Pierce, R. M. 1998. Klamath Salmon: Understanding Allocation Klamath River Basin Fisheries Task Force, US Fish and Wildlife Service, Yreka, CA. 34p. <http://klamathsalmonlibrary.org/documents/Pierce1998pd.pdf>.

Pomeroy, C., C. Thomson and M. Stevens. in review/prep. North Coast Fishing Community profiles: Crescent City, Trinidad Harbor, Eureka, Ft. Bragg.

Sloan, K. and M. Rocha. 2007. Tsurai Management Plan. Prepared for the Tsurai Management Team: California Coastal Conservancy, City of Trinidad, Tsurai Ancestral Society, Yurok Tribe. Klamath, CA 239 p.

[http://www.scc.ca.gov/webmaster/ftp/pdf/sccbb/0806bb/0806Board03A\\_Parker\\_Creek\\_Drainage\\_Ex2.pdf](http://www.scc.ca.gov/webmaster/ftp/pdf/sccbb/0806bb/0806Board03A_Parker_Creek_Drainage_Ex2.pdf)

**From:** Dan Yoakum  
**Sent:** Friday, January 15, 2010 1:00 PM  
**To:** MLPACComments  
**Cc:** [dan@mcn.org](mailto:dan@mcn.org)  
**Subject:** Comments to MLPA

☐ Enclosed are the comments. A hard copy is to follow.

Thank You,

Dan Yoakum

To:

California Marine Life Protection Act Initiative  
% California Natural Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

From:

Concerned citizens affiliated with:

AHRA, MOCA and TRI County Work Groups, including:

Dan Yoakum,  
P.O. Box 583  
Albion, CA 95410

Thomas DiFiore,  
POB 612 Little  
River  
CA 95456-0612

Jim Marten  
Recreational Fishing  
Alliance  
P.O. Box 2420  
Fort Bragg, CA 95437

Burce Campbell  
Albion Harbor Master  
Albion, CA

Allen Jacobs  
P.O. Box 33  
Point Arena, CA  
95468

Mark Taylor  
Fort Bragg, CA  
Mtaylor@mcn.org

Terry Nieves,

Mike Carpenter

All comments follow prescribed format of:

“Comments are most helpful if they are provided as a bulleted list, with page numbers and paragraphs identifying specific portions of the document. Additionally, suggestions are welcome for new sources of information that may be referenced in the revised version of the document. Comments will be incorporated to the extent possible and a revised version of the regional profile will be produced as an additional resource for developing marine protected area proposals.”

Comments begin with

- 1) page numbers and paragraphs,
- 2) paragraph or charts are quoted or referenced,
- 3) concerns, questions and comments are led by three bullet.

Respectfully yours,

DAN YOAKUM

## **SUGGESTIONS FOR EDITS TO INDIVIDUAL SECTIONS AND EDITORIAL SUGGESTIONS TO IMPROVE ACCURACY, CLARITY OR INTERNAL CONSISTENCY**

### **Suggestions for edits to individual sections**

Pg. Viii, par. 1

“kelp forests dominated by bull kelp and associated species assemblages;”

- Does the term include both marine flora and fauna, including coral assemblages and seafloor macro-algae? Invertebrates, marine mammals, pelagic birds, estuarine and inland nesting birds (Heron, Egret) which are often seen standing on assemblages of canopy of bull kelp (*Nereocystis luetkeana*) in bays feeding?

Pg. Viii, par. 9

“opportunities for a range of non-consumptive activities, such as diving, surfing, kayaking, beach-going, swimming, and shore and boat-based wildlife viewing.”

- Does this include the consumption of “seafood” at local restaurants by these user groups classified as “non-consumptive”? On what conditions and by what SAT analysis have kayak fishing or diving to gather or harvest seafood for recreational or subsistence use been closed through the MLPA Initiative process? Are any of these 'Special Closures'? Kayak harvesting of seaweed for commercial or subsistence is not addressed.

Pg. Viii, par. 12

“Most of the study region is relatively shallow (less than 100 meters), although some areas, such as basins and canyons, are much deeper.”

- How is the term 'shallow' defined spatially in the context of the 'North Coast Study Region' given regional marine resource human bioeconomics and user group (by extraction method and limitations) i. e. abalone free dive depth limits, gear type depth limits, target species (and indicator species) temporal/spatial regulations accorded by species life cycle biomass?

Page ix, par.1

“Bull Kelp (*Nereocystis luetkeana*) dominates the study region with dense canopies that support diverse marine life. Kelp beds have been mapped at a fine-scale resolution in six annual surveys (1989, 1999, 2002, 2003, 2004, and 2005) and are generally found off of rocky headlands in the southern portion of the study region.”

- This seems to exclude later mapping efforts (although rather incomplete) from 2006, 2007, 2008. Please explain?
- Though, none of the administrative kelp beds in the region are currently open to commercial take, harvest of edible seaweeds does occur.

Page X, par. 13

“ Significant commercial fisheries occur within the study region. Two port complexes (Eureka and Fort Bragg) include several ports that span the three counties of the study region. Major ports include Crescent City, Trinidad, Eureka, King Salmon, Fields Landing, Shelter Cove, Fort Bragg and Albion. Numbers of commercial fishermen and vessels for all three counties have declined from 1999 through 2008. Dungeness crab was the largest commercial fishery in the region by landings over the past decade, followed by Urchin and Chinook Salmon. The Dungeness fishery was also the most profitable commercial fishery over the same period. “

- Pt Arena is not included in the list of major ports ,but happens to be a large contributor to the North Coast socioeconomic figures if its urchin landings are taken into consideration. All of the urchins landed at the Pt Arena pier are trucked to and processed in Ft Bragg.

Pg. xi, par. 2, sent. 2

“Though, none of the administrative kelp beds in the region are currently open to commercial take, harvest of edible seaweeds does occur.

- The edible seaweed harvesters are a group of small scale family-run businesses who hand harvest wild edible seaweeds along the northern California coast, and have each agreed to delineate seaweed harvests by location of territories based on historical use patterns and verbal agreement. Their emphasis on nurturing sustainability guides their actions.

Pg. xi, par. 2, sent. 3

“Some harvested species include *Postelisa palmeformis*, which was harvested more than any other seaweed from 2002 to 2008, as well as *Laminaria* spp. and *Porphyra* spp.”

- Spelling is Postelsia Palmeformis

Page 3: Between Paragraph 4 and Paragraph 5

- It would help to include a summary of the recent Worm et al finding that the CA Current already has the world's most precautionary management of the primary biomass and the highest level of sustainable fisheries. No collection of the “best available science” would be complete without a reference to their recent work. This seems to me to be the most appropriate place to include it.

Pg. 3, par. 6, sent. 1-2

‘The Del Norte coast at the north end of the study region is characterized by a relatively narrow shelf and a rocky coastline. The Smith River, the largest river system in California that flows freely along its entire course, meets the ocean five miles south of the Oregon border (Quinones and Mulligan 2005).’

- Although the study region boundary ends at the political border between the states of California and Oregon, neighboring MPAs in southern Oregon could potentially provide habitat for species frequenting the waters of both states, and could supply recruits to MPAs established in the north coast study region. There are four existing MPAs in Oregon state waters from the state border to the Cape Arago area. All four are smaller than the SAT’s preferred size guidelines, and three of them only provide protection to the intertidal zone. In addition to the existing MPAs, Oregon is currently undergoing an MPA development process to implement a new set of marine reserves.

Page 5, Par. 2, Sent. 3

“The marine resources of the region support commercial and recreational fisheries, including oysters, flatfish, rockfish, albacore, crab and salmon.”

- include: wild edible seaweed harvesting and urchin diving.



Page 19, par. 3, sent. 1

“Noyo River Estuary: The Noyo River estuary is located in northern Mendocino County, entering the Pacific Ocean approximately 2 miles south of Fort Bragg.”

- Perhaps from City Hall or the offices of the City of Fort Bragg, or the Fort Bragg Advocate News building, but Fort Bragg City limits encompass both shores of the Noyo River at it's mouth.
- The Noyo is not located in northern Mendocino County! What criteria was used to establish this declaration?
- LEK would state that northern Mendocino County starts where Hwy leaves the coast. If the 'Study Region' boundaries were used, which seem more appropriate, then Fort Bragg is closer to being right in the middle on the Mendocino Coast.

Pg 19, par. 4, sent. 1-3

“The Big River estuary is the largest estuary in Mendocino County, encompassing an area of 0.24 square miles. Unlike some of the other estuaries in Mendocino County, the mouth of the Big River remains connected to the ocean year round. The entire estuary, including extensive mudflats and marsh habitat, covers 1,500 acres and is one of the largest relatively undisturbed estuaries along the California coast (Warrick and Wilcox 1981; LeValley et al. 2004).”

- A square mile by topographic standards is 640 acres square. If the estuary is 1500 acres square, then doesn't that calculate to more than 2 square miles not .24 square miles?
- “The estuary also provides habitat for geese, ducks, and Bald Eagle (LeValley et al. 2004).
- The Big River is identified as an impaired water body due to concerns related to sedimentation and temperature (CCC 2006). The property's unique natural resources include: [http://www.mendocinolandtrust.org/?Big\\_River>About\\_Big\\_River](http://www.mendocinolandtrust.org/?Big_River>About_Big_River)
  - 1,500 acres of wetlands, including brackish, freshwater, saltwater, and fresh emergent marshes, the **8.3-mile long estuary**, and associated riparian habitats.
  - 27 endangered, threatened, or species of concern.
  - 60,000 acres of connected wildlife habitat between this and adjacent public land, and over 100 miles of joined trails.

- 50 miles of Big River and its tributaries, home to Dungeness and shore crab, freshwater mussels, ghost shrimp, river otter, beaver, harbor seals, and over 22 fish species including coho and steelhead salmon, bocaccio, starry flounder, Pacific halibut, Pacific herring, eulachon, buffalo and prickly sculpin, and 7 species of surfperch.
  - Over 130 bird species recorded to date, including Osprey, Northern Spotted Owl, Golden Eagle, Yellow Warbler, Purple Martin, Vaux's Swift, Yellow-breasted Chat, and Olive-sided and Pacific-slope Flycatchers. Download the Land Trust's [2008 Checklist of Birds Seen at Big River State Park](#) (520 K).
  - The longest undeveloped estuary in northern California.
  - Significant, untapped archeological resources throughout the Property.
  - High diversity of plant communities including Northern Coastal Salt Marsh, Coastal Brackish Marsh, mudflats, Coastal and Valley Freshwater Marsh, Coastal Scrub, riparian forests, Coastal Redwood Forest, Bishop Pine Forest, Grand Fir Forest, Mendocino Pygmy Cypress Forest, Coastal Coniferous Forest, and mixed hardwood/conifer forest, as well as five aquatic plant associations.
  - At least 32 mammals including river otter, black bear, beaver, mountain lion, bobcat, mink, ring-tailed cat, long and short tailed weasel, little brown bat, gray fox, harbor seal, and the red tree vole.
  - 60-acre Laguna Marsh, an unusual inland and extensive fresh-emergent wetland representing one of the most productive habitats on earth.”
- 
- **(Great Blue Heron and Egret)** don't get mentioned at all throughout the NC Draft Profile. These birds nest in estuaries according to DFG WHIR and CA WHR for the Blue Heron and Egret have been considered in cumulative impacts assessments in all THP's filed in the 'overcut' Big River watershed for decades. These birds also forage on estuarine and coastal waters species of faunal importance listed throughout the (Draft) NC Regional Profile including those likely to benefit from MPA's.
  - What is the computational weight of their ecosystem service and function in modeling estuarine and nearshore habitats?

Page 21, par. 3 sent. 4

“Physical factors which influence bull kelp distribution include bottom light intensity, nutrients, wave action, shifting sediments, the character of the substrate (rocky, sandy, silty, coarse-grained), water temperature, water motion and salinity (Dayton 1985).”

- How are nutrients and temperature addressed in the water column of bull kelp beds in the north coast region? Giant kelp beds and canopy occur further offshore than the intertidal and very nearshore bull kelp beds.

Page 21, par. 3. sent. 7

“Human impacts to bull kelp beds have not been as thoroughly documented as giant kelp beds (DFG 2001b).”

- Duly noted is any absence of mention of hand harvesting as a human impact. The scale and distribution of bull kelp is very different than giant kelp. Percentage of areas that are harvested to the entire resource are very small scale. Hand harvesting of bull kelp in the NC Region is first contained by access and gear type, then tides and weather. What is the definition of “impact” or “human impact” and how does it apply outside the categories of beneficial or not (to ecosystem function or services) and LOP? Do acceptable levels of harvest (within mpas) of any species (likely to benefit) presume a definition of impacts? How is this best explained placed in the context of the fast growing bull kelp canopy that is left intact after minimal harvest of frond tips?

Page 21, par. 4, sent. 3

“Bull kelp sporophytes are slow-growing for the first three to four weeks and then accelerate rapidly to canopy height by midsummer (DFG 2001b; Springer et al. 2006).”

- Do gametophyte survival and regenerative capacity differ by substrate in the North Coast 'study' region?

Page 21, par. 5, sent. 9

“The majority of the kelp surveyed is found from the Fort Bragg area to the southern end of the study region.”

- Is that the majority of the kelp or the majority of the kelp surveyed?

Page 22, table 3.1-5, insert a

“a) A small portion of the coastline between Slaughterhouse Gulch (Mendocino County) and Jack Peters Gulch (Mendocino County) was not captured during the 2008 survey.”

- This portion needs to be added to the inventory for correct analysis. How was the omission of that small portion handled in the Regional Profile bull kelp distribution analysis and then the Marine Map data layer? Were the acreages in the area 'not captured' removed from all calculations? From calculations of percent overall? Were they extended by association to substrate data?

Page 26, section 3.2.1: second sentence

“... occur within the South Coast Study Region...”.

- This is the North Coast Study Region

Page 26, par. 4, 3.2.1

“Depleted and Overfished Species - This section describes depleted and overfished species that occur within the south coast study region. When describing these species, several definitions of "depleted" and "overfished" may be considered.

- It should be noted that many species have not yet had their populations assessed. General information on what is known about the status of harvested species can be found at [www.dfg.ca.gov/mrd/status/](http://www.dfg.ca.gov/mrd/status/) (DFG 2001a; DFG 2004a). “

Pg. 26, par. 5

“The MLPA refers to the term “depleted” in reference to marine life populations under “Program Goals” in Fish and Game Code (FGC) §2853(b)(2). However, additional definitions of this term exist. The federal Marine Mammal Protection Act (MMPA) has defined “depleted” as follows: “...a species or population stock is below its optimum sustainable population; ... or a species or population stock is listed as an endangered species or a threatened species under the federal Endangered Species Act (ESA)” (16 USC §1362(1)). The equivalent term “depressed” is found in the Marine Life Management Act (FGC §90-99.5) which includes the following definition of a “depressed” fishery: “...the condition of a marine fishery that exhibits declining fish population abundance levels below those consistent with maximum sustainable yield” (FGC, §90.7). Similarly, the Pacific Fishery Management Council defines “overfished” as “Any stock or stock complex whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding.” (PFMC 2008).”

- **“Productivity** is most commonly measured in studies investigating the relationship between diversity and ecosystem function. In the (Hooper et. al. 2005) review of the literature which provided empirical estimates of productivity, 40 of the 43 studies (93%), use standing biomass or change in biomass as an estimate of productivity. In only one study was the use of biomass as a proxy measure used (Downing and Leibold 2002). Biomass and productivity are reported at very large scales.”

- What is the criteria for data acquisition and applications of scale between specific species biomass and specific productivity? Productivity and Maximum Sustained Yield models are typically made at smaller scales and then scaled up, while ecosystem function models are scaled closer to the scale of habitat types and species life stages. There are a number of variables in between; changes in environment, crosswalk algorithms, monitoring, culture and more.
- *Literature cited:* Measuring Ecosystem Function: Consequences Arising From Variation In Biomass-Productivity Relationships – Community Ecology DOI 101556 2008 C. P. terHost, P. Munguia

Page 28, par. 2

“In 2008, approximately 66,200 Sacramento River fall Chinook adults returned to spawn in the Sacramento River Basin. This is the lowest return of Sacramento River fall Chinook on record and is well below the annual conservation objective of 122,000-180,000 adult spawners required by the PPMC's Salmon Fishery Management Plan.”

- “The Klamath fish kill of September 2002, when 68,000 salmon died because of low, warm water conditions on the lower river, is considered the largest of its kind in U.S. history, another "hidden fish kill" took place on the American River in the fall of 2001, 2002 and 2003.”
- “Thirty-seven percent of the run of 2003 - 58,651 fish out of 158,516 fish - died before spawning in the 22 miles of the river below Nimbus Dam in the fall of 2003. The vast majority of the total run, 147,103 fish, were natural spawners, according to Mile Healy, associate fishery biologist for the California Department of Fish and Game, who coordinated a crew of workers to count and record the carcasses on the river during the annual post-spawning carcass survey.
- Huge die-offs of salmon before spawning also occurred in 2002 and 2001. The 2002 run lost 30 percent of the run, 35,432 fish before spawning. The 2001 run was the worst of all, with 87,626 fish perishing (67 percent) perishing before spawning. <http://www.fishsniffer.com/dbachere/040813amerfishkill.html>
- “The population collapse has been caused by record state and federal water exports from the Sacramento-San Joaquin River Delta, the West Coast's largest and most significant estuary, since 2001. For example, State Water Project exports increased from 1.8 million acre feet of water in the 1990's to 3.7 million acre feet of water in 2006, according to Bill Jennings, executive director of the California Sportfishing Protection Alliance.” <http://www.fishsniffer.com/dbachere/071216fallsurvey.html>
- Judge Orders More Water for Vanishing Fish in Sacramento Delt, Delta smelt, other delta species, are in sharp decline, **September 4, 2007**

- Fresno, CA - Responding to a lawsuit brought by conservation organizations, and following a hearing that lasted two weeks, Judge Oliver Wanger of the federal district court in Fresno has ordered that flows of water through the Sacramento-San Joaquin River Delta in California be increased between December 2007 and June 2008 in order to help the delta smelt, a federally protected species found only in the delta, recover from its currently imperiled state. Though it was the most abundant fish in the delta as recently as 30 years ago, fish biologists agree that the smelt is presently on the brink of extinction, due in part to massive exports of water from the Delta by federal and state water projects. <http://www.earthjustice.org/news/press/007/judge-orders-more-water-for-vanishing-fish-in-sacramento-delta.html>
- “The state Department of Water Resources, the agency responsible for operating the pumps that push water out of the delta over a mountain and into an aqueduct where it’s destined for 750,000 acres of agriculture and 23 million faucets.”
- “No habitat exists downstream of the pumps, just a 444-mile-long cement channel and a reservoir that satiates Southern California’s thirst. So the state attempts to screen out marine life, with limited success. Billions of gallons of water pass through the Skinner Fish Protective Facility each day. Inside that warehouse, a 24-hour crew regularly hauls up a net to see what marine life they’ve sucked in. They index their catch and truck the fish upstream and dump them back out into the delta.”  
[http://www.voiceofsandiego.org/news/article\\_61ecc413-0f80-51ca-9412-a9a4c77e06e0.html](http://www.voiceofsandiego.org/news/article_61ecc413-0f80-51ca-9412-a9a4c77e06e0.html)
- “Losses of Sacramento River Chinook Salmon and Delta Smelt to Entrainment in Water Diversions in the Sacramento-San Joaquin Delta”
- <http://escholarship.org/uc/item/7v92h6fs;jsessionid=4DD4F453085C8BC82CEC479BAF21E7C6>
- Title: Losses of Sacramento River Chinook Salmon and Delta Smelt to Entrainment in Water Diversions in the Sacramento-San Joaquin Delta, Journal Issue: San Francisco Estuary and Watershed Science, 6(2) Author: Kimmerer, Wim J. Publication Date: 06-05-2008 Publication Info: UC Davis, San Francisco Estuary and Watershed Science, John Muir Institute of Environment Permalink: <http://escholarship.org/uc/item/7v92h6fs>
- Citation: Kimmerer, Wim J.(2008). Losses of Sacramento River Chinook Salmon and Delta Smelt to Entrainment in Water Diversions in the Sacramento-San Joaquin Delta. San Francisco Estuary and Watershed Science, 6(2). Retrieved from: <http://escholarship.org/uc/item/7v92h6fs>

- “Pumping at the water export facilities in the southern Sacramento-San Joaquin Delta kills fish at and near the associated fish-salvage facilities. Correlative analyses of salvage counts with population indices have failed to provide quantitative estimates of the magnitude of this mortality. I estimated the proportional losses of Sacramento River Chinook salmon (*Oncorhynchus tshawytscha*) and delta smelt (*Hypomesus transpacificus*) to place these losses in a population context. The estimate for salmon was based on recoveries of tagged smelts released in the upper Sacramento River basin, and recovered at the fish-salvage facilities in the south Delta and in a trawling program in the western Delta. The proportion of fish salvaged increased with export flow, with a mean value around 10% at the highest export flows recorded. Mortality was around 10% if pre-salvage losses were about 80%, but this value is nearly unconstrained. Losses of adult delta smelt in winter and young delta smelt in spring were estimated from salvage data (adults) corrected for estimated presalvage survival, or from trawl data in the southern Delta (young).”
- “These losses were divided by population size and accumulated over the respective seasons. Losses of adult delta smelt were 1–50% (median 15%), although the highest value may have been biased upward. Daily losses of larvae and juveniles were 0–8%, and seasonal losses accumulated were 0–25% (median 13%). The effect of these losses on population abundance was obscured by subsequent 50-fold variability in survival from summer to fall.”
- “In this paper I estimate the effects of export pumping in terms of proportional losses of two fish species. Chinook salmon (*Oncorhynchus tshawytscha*) and the threatened delta smelt (*Hypomesus transpacificus*) are target taxa for restoration and management in the Delta. Data for several races of Chinook salmon are available to estimate the losses of these fish to direct effects of entrainment. I focus on winter Chinook because it has been the target of considerable restoration effort, although data for other races are used to provide greater resolution.
- Two life stages of delta smelt are examined: adults in late winter, and larvae and juveniles in spring. Effects of export pumping are estimated mechanistically, rather than through correlative analyses with the respective population abundances.”
- “The conceptual framework for these calculations differs for the two species. Young Chinook salmon are exposed to export effects during movement through the Delta. Data on length distributions at the export facilities and in field studies suggest that juvenile Chinook generally are exposed to entrainment only during movement, and are rarely entrained while rearing. Young Chinook rear in or migrate through the Delta at various times of year but are most abundant in the Delta from March through June (Williams 2006). Although most of the migrating fish are small fall-run Chinook, winter Chinook and other runs form a substantial pulse of fish larger than the fall run in February–March (Williams 2006). Chinook smolts may take any of several pathways that lead them through the Delta either to the export facilities or through the western margin of the Delta at Chipps Island, and then to sea (Figure 1).

When control gates in the Delta Cross-Channel (Figure 1) are open, the smolts may enter the central Delta further upstream, and this could increase their probability of entrainment in the export facilities.”

- Title: Central Valley Salmon: A Perspective on Chinook and Steelhead in the Central Valley of California Journal Issue: [San Francisco Estuary and Watershed Science, 4\(3\)](#) Author: [Williams, John G.](#) Publication Date: 12-05-2006 Publication Info: UC Davis, San Francisco Estuary and Watershed Science, John Muir Institute of the Environment <http://escholarship.org/uc/item/21v9x1t7>
- Citation: Williams, John G.(2006). Central Valley Salmon: A Perspective on Chinook and Steelhead in the Central Valley of California. San Francisco Estuary and Watershed Science, 4(3), Retrieved from: <http://escholarship.org/uc/item/21v9x1t7>
- “Fall-run fry emerge from December into April, depending on the date of spawning and water temperature during incubation, and exhibit two main life-history patterns. Most begin migrating as fry, shortly after emergence (Rutter 1904, Hatton 1940), and most of these apparently rear for one to three months in the Delta before moving into the bays (ch 5). However, some continue directly through Carquinez Strait into San Pablo Bay (Hatton 1940). Analogous groups in Puget Sound have recently been described as “delta users” and “fry migrants” (Greene and Beechie 2004). Of the Chinook that do not leave the gravel-bed reaches as fry, most do so as parr or silvery parr by May or early June, before the lower rivers become intolerably warm, and pass fairly quickly through the Delta. These larger migrants are sometimes called “fingerlings” or “90-day Chinook” or “smolts,” although few of them develop the full suite of developmental characteristics of smolts while they are still in the rivers (ch 5). The relative contributions of fry and pre-smolt migrants to returns are not known, although there is good evidence that the survival of the larger migrants is much higher (ch 10).”
- “The thermal inertia of water in reservoirs dampens the annual cycle in the thermal regime in the rivers downstream, so that water in most remaining spawning habitat in the Central Valley is now warmer in the winter than it was historically. This affects the duration of incubation, such that fry emerge earlier (Moffett 1949), and the migration of fall-run fry down the Sacramento River now begins about a month earlier than indicated by data collected before the construction of Shasta Dam (ch 5). The consequences of the change in timing are unknown, but could be significant.”
- “Fall and spring Chinook spawn when water temperatures are decreasing, however, and there is evidence that their eggs are more tolerant of warm water shortly after fertilization than they are later. Eggs exposed to water temperatures that tracked the temperature of the Columbia River, plus a 2.5 °C increment, showed no effect of an initial exposure to 16.1 °C (Olson and Foster 1957). This suggests, for example, that Chinook in the American River that begin to spawn when temperatures reach about 15 °C (Williams 2001a) may experience no ill effects, provided that normal seasonal



cooling occurs. Chinook eggs exposed to warmer water at fertilization apparently survive better than eggs reared at a uniformly low temperature (Combs 1965, cited in McNeil 1969).” “Juvenile Chinook at sea eat mainly larval and juvenile fishes, but they also eat plankton, especially euphausiids, and even terrestrial insects that have blown offshore (Snyder 1924b; Healey 1991; MacFarlane and Norton 2002). Juvenile Chinook can be voracious eaters, as indicated by Snyder’s (1924) description of fish taken off Half Moon Bay. Less is known about the diet of small steelhead in the ocean, but based on a sample 134 collected north of Cape Blanco reported by Percy et al. (1990), it is similar to that reported for small Chinook, except that euphausiids may be more important in the diet of steelhead.”

- Later ocean life “Information on the spatial distribution of the landings of sub-adult Central Valley Chinook from commercial and sport harvest is available from the PPMC , although recent data are affected by restrictions on harvest. Most are between the Columbia River to the north and Monterey Bay to the south. Point Conception probably marks the southern extent of their range, and only a few go north beyond Washington (Myers et al. 1998, Table 11-1).”
- “It seems likely that ocean conditions influence the distribution of Chinook in the ocean, and that before harvest restrictions this was reflected in the distribution harvest, or rather, in the delivery of fish to ports. However, I have not found studies that deal with this issue. More specific information on the location of harvest probably could be obtained by fishers, following the example of Healey and Groot (1987), but again I have not found such studies for California Chinook. At a crude level, however, the data in Table 11-1 indicate that winter-run Chinook tend to have a more southerly distribution, while late fall Chinook may be more likely to venture as far as British Columbia. Temperature and depth preference Data from 25 archival tags recovered from large subadult Chinook show that they usually occupy habitat where the water temperature is between 8 and 12°C, and they occupy deeper water in the winter, often deeper than 200 m, and shallower habitat in late spring and early summer (Hinke et al. 2005a,b).”
- Growth in the ocean “Chinook and steelhead grow rapidly in the ocean, but strong variation in the size at age of spawning fish, discussed in the next chapter, implies that there must also be strong variation in growth rates at sea, both within and among years. Growth is seasonal for Chinook, with little growth in winter (Healey 1991), ,at least at higher latitudes , and the apparent growth rate declines with age, at least in part because more rapidly growing fish tend to mature early.”
- “There is little information on the ocean growth rate of Central Valley steelhead, except what can be inferred from their size and age at Chipps Island (Fig 5-43) and at return (Table 6-5).”
- Sub-adult diet “The diet of larger sub-adult Chinook off the California of the coast of California and elsewhere has been described in various papers reviewed by Healey

(1991) and Hunt et al. (1999). Generally, subadult Chinook are opportunistic foragers that eat mostly small fish and squid, but they eat plankton as well, especially euphausiids and larval crabs. What fishes are eaten apparently depends on what is available (Healey 1991). Thus, the quantity and quality of the food available probably matters more than the particular species.”

- “Foraging opportunities in the ocean are not static, and are not beyond management influence. For example, early studies reported that sardines were important prey for Chinook (Healey 1991). Sardines were abundant early in the twentieth century, as illustrated by the distribution of sardine catches in Monterey Bay in 1921-22 (Figure 11-2), about the time that Clark (1928) was collecting salmon scales for his analysis of life history patterns and length at age. By mid-century the sardine population crashed, but in recent decades their abundance has increased again. To the extent that humans prey on the same fishes as Chinook, we are competing with them as well as preying on them.”

Page 35, par. 3, sent. 1

“Plant species: A variety of marine algae provide habitats and food for invertebrates, fishes, and marine mammals in the south coast study region.”

- North coast study area

Page 39, par. 3, sent. 1-3, “Pinnipeds, Page 39, par. 4 “California Sea Lion, Page 39, par. 5 “Steller Sea Lion, Page 50, par. 5 “Shorebirds and waterfowl, Page 50, par. 6 “Marine mammals,

- What is the relative consumption level “” and is this entered into the modeling?

Page 49, par. 1, sent. 4

“Studying associations between watersheds and coastal waters from multiple perspectives and beneficial uses – biological, ecological, human, etc. “

- The fourth sentence holds the key cultural bias point that appears throughout the MLPAI process. The local humans are an active, legitimate, biological part of the marine ecosystem. It is a cultural thing as well as a scientific fact. For many, this belief approaches a level similar to religion. The writing of the fourth sentence implies that “human” is a category separate from “biological” and “ecological” of “perspectives and beneficial uses” of the marine environment. I strongly suggest that you remove the general term “human” because it is redundant and misleading, as long as humans are biological and ecological entities.

Page 51, section 4.2: Paragraph 1, last sentence

“The north coast study region extends for over 640 miles along the Californian coast, includes 1,023 square miles of ocean, and drains over 10,000 square miles from the 19 hydrologic units or major watersheds.”

- This refers to “640 miles” of coastline in the North Coast Study Region without qualifiers. The 640 mile reference is misleading in terms of references elsewhere in your document to figures of 1100 miles of total California coastline and 225 miles of North Coast Study Region coastline. It has been the general and accepted practice of the MLPAI and DFG to measure all coastal distances as a “point to point” measurement. Either carefully qualify “640 miles” or use “225 miles”.

Page 54 Par. 3 Sent. 2

“In the North Coast Study Region, recreational boating is an important activity- pleasure boats make up 97% of the vessels in study region (CADMV2008, Rust & Potepan 1997)”

- Owners of boats are encouraged to put “pleasure boat” on the DMV registration, so as not to have to pay more taxes. Therefore, this data is not accurate

Page 54, par. 3, sent. 1-2

“Ports, Harbors, Marinas and Associated Vessels Marinas and other embayments, along with associated vessels, can have adverse impacts on water quality, as most pollutants are directly discharged into the water (SWRCB 2008). In the north coast study region, recreational boating is an important activity with social and economic benefits, and pleasure boats make up 97% of the vessels in the study region (CADMV 2008, Rust and Potepan 1997).”

- Can that be broken down by Harbor District or Port? Does the term 'recreational boating' here include 'recreational fishing'? Does it include recreational fishing from a recreational boat? Is kayaking considered to be recreational boating? Rust and Potepan 1997 deals with southern California not northern California.

Page 57, par. 6

“**California critical coastal areas (CCAs)**, designated by the California Coastal Commission, significantly overlap with SWQPAs. These CCAs serve the dual goals of “improving degraded water quality, and providing extra protection from nonpoint source pollution to marine areas with recognized high resource value” (CCC 2002). Fourteen areas in the north coast study region have been designated as CCAs (Table 4.3-4) (CCAs

not also designated as SWQPAs are notated by following the name). This list of CCAs includes “impaired water bodies” identified in the section 303(d) list, as well as marine managed areas, wildlife refuges, waterfront parks, and beaches and ASBSs.”

Page 58 Table 4.3-4: Critical coastal areas (CCAs)

Critical Coastal Area Name CCA ID Number

Albion River\* 13

( Source: CCC 2002 and 2006.)

Note: \* indicates which CCAs not designated as SWQPA

- If the Albion River is on the Critical Coastal Area list and is identified as an impaired water body then Mendocino Redwood Company and Calif. Dept of Forestry need to be brought to task over cleanup of the watershed for protection of Coho and Steelhead redds.
- ( After streambed cleanup, the Albion River would make an excellent study area for a Salmon enhancement and installation of a small stream fish hatchery.)
- The Garcia River is not in the North Coast Study region

Page 63, par. 4.2

“2. Living Resources (fishing, fish hatcheries and aquaculture, seafood markets and seafood processing).”

- Information on Living Resources for Mendocino County was completely left out of the Draft Report. The County as a whole needs to be assessed in order to have a complete study. There are no figures for Del Norte County on Transportation. Humboldt County is the only one to have a complete set of tables. In my opinion this part of the Draft is severely flawed and is in need of revision.

Page 63, Table 5.7-1:

- It should include consumptive use data. If it does not it should be eliminated from the profile on the grounds that it is culturally biased. Also it is statewide data rather than North Coast regional. These numbers would be much different for the North Coast only. (For instance there are few north coast water skiers.)

Page 63, par. 5 Numb. 2

“Living Resources (fishing, fish hatcheries and aquaculture, seafood markets and seafood processing).”

- Edible seaweed should be included as a living resource.

Page 65, section 5.1-1, Figure 5.1-1:

- There is no representation of “Transportation” – there should be.

Page 67, Figure 5.1-3

“Source National Ocean Economics Program 2009 data is used.”

- Living Resources data should be included on the graph for accuracy as in Figure 5.1-2 for Humboldt County. Mendocino County Ocean economy wages by sector (1998-2004 even years) should include Living Resources data. We would like accurate data to reflect the fact that Mendocino does have an active thriving Living Resource.

Page 68, par. 6, “Some Native American people...” ,

Page 69, par 1 sent. 1 Indigenous Peoples depend...”

Page 122, par. 2, sent. . “Federally-recognized Native American Tribes...”

- There is no mention of Tribes without Federal Recognition. Indigenous and Tribal Rights as mentioned above in the same chapter 5.2.1 of the NC Draft Regional Profile - “Indigenous Peoples depend upon the rich diversity of marine and coastal plant resources as part of their daily lives.” “Thus, these cultural uses are not recreational or commercial, although commercial fishing does occur.” And what matters here is that the Native Indigenous People of Mendocino County receive the same validation for cultural practices, whether federally recognized or not. Access to “cultural uses and associated areas” is of utmost importance as the NCC 'Study' Region has already impacted the Kashia Band of Pomo within Sonoma and Mendocino County?
- What previous direction (over MPA designations and tribal resource use amounts and method of harvest, uses) has the SAT been instructed with in communications with the BRTF or Ken Wiseman and the I Team? Audio from the 062309 Fort Bragg I Team Ecotrust presentation clearly has Ken Wiseman stating that the I Team met with “Tribes up north yesterday” (062209).  
<http://albionharbor.org/mlpafb/sovereigntyhold.mp3>

Pages 68 – 69: section 5.2

- Beliefs and attitudes of different user groups should be included equally.
- Indigenous Peoples (local Native Americans) were credited as being an “intrinsic part of the ecosystem” who “strive to steward the environment in a sustainable manner”. This is very commendable. It is commendable that you wrote it here and it is commendable that the Indigenous Peoples are a part of the ecosystem. The North Central Coast Study Region Profile did not include Native Americans in their table of contents and I could find only one short paragraph written about them (with no footnotes). I cannot praise you enough for having included them in this way. However, they are not the only cultural group on the North Coast. You need to also consider the broader group of all local rural residents. We locals are of all races, religions, ages, etc. We are also neighbors, friends and associates of the Indigenous Peoples, and we feel every bit as strongly that we too, are an “intrinsic part of the ecosystem” who “strive to steward the environment in a sustainable manner”. We take pride in being a part of nature and have gone to great lengths to maintain a high level of sustainability and this needs to be said by you too. There are many examples to prove this point to be true. I suggest that you include a Section in Chapter 5 – say between the Section “Native American Coastal Communities” and the section “Commercial fishing”.

Pages 69 - 98: In sections 5.6 (coastal tourism) and 5.7 (non consumptive uses)

- There is writing in the first few paragraphs emphasizing how they contribute greatly to the economy. There are no equivalent sentences extolling the local benefits - economic or otherwise - in sections 5.3 (Commercial Fisheries), 5.4 (Kelp Harvesting and Aquaculture) and 5.5 (Recreational Fisheries). You need to either add writing to sections 5.3, 5.4 and 5.5 or delete writing from sections 5.6 and 5.7 to reduce cultural bias.

Page 70 5.3.1 Port Complexes

- The report states that Point Arena is not in the study area and therefore the landings of Point Arena will not be included in this study.
- A portion of the landings must be included because a large portion of the landings in Point Arena (including crab, salmon and sea urchins of elk) actually come from north of the point in Manchester Beach waters that are included within the North Coast Study Area.

Page 71 bottom paragraph

- There is no mention of Albion Bay as a port. Albion port has recently landed over one million pounds of red urchin.

Page 75, par. 1, **5.3.2**

Description of Commercial Fisheries

- This section provides data on the commercial fisheries in the north coast study region. Average annual landings and value of commercial fisheries for the study region, and average annual landings by port complex for the years 1999-2008 are listed in Table 5.3-1. The top ten commercial fisheries by average annual landings compose 99.4% of the total average annual landings (Table 5.3-2) from 1999-2008.”

Page 75 Table 5.3-2 Table 5.3-2:

Average annual landings (pounds) for principle commercial fisheries by county, 1999-2008

Species and Market Category	Average Annual Landings		
	Del Norte	Humboldt	Mendocino
Salmon, Chinook	47,968	81,938	825,570
Urchin	3,177	4,779	1,680,318

Page 76 Table 5.3-3: Average annual ex-vessel revenue in dollars for 1999-2008 for principle commercial fisheries

Species and Market Category	Del Norte	Humboldt	Mendocino
Ex-vessel Revenue			
Salmon, Chinook	164,226	249,011	2,239,955
Urchin	2,129	4,664	1,388,166

- With commercial salmon landings such a large contributor to the socioeconomic plight of Mendocino County, why is there not an immediate investigation into the collapse of the salmon fishery on the North Coast.
- (During the study period, Albion Harbor accounted for 20% of urchin landed in the Ft. Bragg Harbor Complex )

Page 77, last sentence refers to South Coast Process.

- Should be North

Page 81 and 82, section 5.4.2 and 5.4.3:

- Dollar amounts should be included in the Sections for the Edible Algae Harvest and Aquaculture like those in the Commercial Fishing Section. There needs to be more meaningful hard data to help understand the importance of these consumptive activities.

Page 77, par.5, **5.3.3** Commercial Landings

“A critical component of commercial fisheries related to establishing or modifying MPAs is the area in which each fishery occurs. More specifically, the relative effort occurring in specific areas, and the relative ex-vessel revenue derived from these areas, are key components to MPA planning. Landing receipts collected by DFG require that catch locations for all market categories be included. These data are reported by coded 10-minute blocks. However, these data are usually filled in by the processors, rather than by the fishermen, and contain inaccuracies.”

- This statement is not true for the Albion Harbor Complex. As Certified Weightmasters, we go out of our way to ask each individual fisherman or diver which 10 minute block their catch was secured in to achieve the highest degree of accuracy.

Page 81, par.1 sent. 4

“regulations require that harvesters weigh and report amount they harvest, and pay a royalty of \$ 24.00 to the State of California for each ton of seaweed harvested.”

- Should say each ton of “wet” seaweed harvested.

Page 81, par.,1 sent. 5

“These plants may be harvested throughout the year...”

- Needs to include the words: These plants are in a harvestable state for 2-3 consecutive months during the year and unharvestable the remainder of the year due to their growth conditions.

Page 81 Table 5.4-2

- Specify on chart that the seaweed harvested is “wet average pounds”



Page 82, par. 4-5 and Page 83 par. 1-3 5.5

#### “5.5 Recreational Fisheries”

- Recreational Fishing is addressed and catch figures are presented. In the commercial fishing sections, a dollar value is attached to the catch figures. In that fish caught recreationally are not just discarded, but are in fact consumed as meals, that catch has as much dollar value as a commercially caught fish, and in that much of that catch is consumed locally, that dollar value has a high local socio-economic impact. While the socio-economic impact of recreational fishing on business has been dollar-quantified (inadequately, I believe), has the actual dollar value of the catch to the people who do the catching been considered?
- Recreational fishing statistics are presented but no dollar value is ever given, but there should be. There is no mention of Subsistence Fishing and Gathering other than in the Indigenous peoples/native American entries. People of many cultures place high value on fresh sea food gathered by themselves or family and friends. (See more on subsistence in item 26 below.) Part of the value of the recreational harvest should be interpreted in monetary value and must be included in economic data in the same manner as commercial fishing. Take abalone for example. There are extremely few, if any, “catch and release” abalone gatherers. There are however, a measurable number of consumptive abalone gatherers who catch and consume their measurable number of abalones (DFG data is complete). So it would be easy to quantify the dollar value of the subsistence use of abalone using the actual retail value of farmed red abalone and/or the going rate of black market (poached) red abalone from DFG records. Other species’ subsistence value could be similarly calculated starting from catch data and retail prices. This Dollar value data may not be very accurate but it would be exactly as accurate as the catch data for the recreational fishery that you already included (see table 5.5-1 on page 83), therefore just as valid.

Page 83, Table 5.5-1

- Greenlings and lingcod should not be combined. They are quite different ecologically and economically, and they are dealt with separately by DFG.

Page 84 – 85, Table 5.5-3:

- Abalone sport Catch data should include a line of data showing total state catch and percentage of state catch of the North Coast Study Region to show the relative importance of the Abalone fishery. Using 2006 data I find: 145885 for North Central

Coast combined with 119556 from the North Coast For a total of 265441 for all of California. The North Coast Study region's share is 45%.

**Page 86, par. 3 -5**

Kayaks -“Kayak fishing activity is part of the private and rental boat fishery. Areas fished include nearshore coastal waters, bays, and tidally influenced river mouths. Finfish target species include bottomfishes, salmon, and halibut. Abalone and crab may also be targeted by kayakers freediving or hoopnetting. Important kayaking areas include Humboldt Bay and Trinidad. “

“Shore-Based Mode - Shore-based modes include all land-based fishing access, including beaches, rocky shores, and man-made structures. Shore trips include scuba and free dive trips where the point of access was shore based and no vessel was used.”

“Beach and Bank-The beach and bank mode consists of fishing that occurs from the natural shoreline. Types of fishing activity include angling, clamming and shore picking, pokepoling, and consumptive diving. Popular finfish targets in this region include redbait and other surfperch species, rockfishes, greenlings, and smelts. Salmonids and elasmobranchs (sharks and rays) are also targeted from shore in estuaries and river mouths. Abalone and various species of clams are important invertebrate targets. Shore access areas in ocean and estuarine waters can be limited in many locations throughout the north coast study region. Large stretches of the north coast study region have little to no shore access due to private land ownership and difficult or dangerous terrain. Shore access frequently occurs in the more populated areas of the study region (i.e.),Fort Bragg, Eureka and Crescent City areas). In many of the less populated areas, access may be locally abundant. However, these areas may not be as frequently used due to their remote location (i.e. Cape Mendocino, Shelter Cove, and Gold Bluffs Beach areas).”

- Over 50% of the finfish catch for the Albion Harbor Complex consists of Salmon take, both commercial and sport. Accordingly, without a commercial and sport salmon season there is an estimated 50% loss in income both at the harbor and in the surrounding community of Albion.
- These facts have a devastating impact on the Socioeconomic future for Albion alone which depends on commercial fishing, tourist and local dollars to be circulated within its small geographic area.
- There are no less than 15 known beach and bank access points from Albion Harbor to Ft. Bragg.
- Here are a few of the more well known: Albion, Dark Gulch, Buckhorn Cove, Van Damme, Stevens Woods, Gordon Lane, Big River, Mendocino Headlands, Junction of Lansing St. and Hwy. 1, Casper Beach, and off of Ocean Drive south of Ft. Bragg.

- Important areas for kayak fishing access are : Albion Harbor, Schooners Landing, Van Damme, Big River, Casper Beach, West Port and Shelter Cove.

Page 88 Top of page

- There is no mention of rockfish rebuilding closures that have been going on for years.

Page 90, Table 5.6-1:

- Most of Manchester Beach and all of Schooner Gulch Beach are not in the North Coast study region.

Page 90, par. 1-3, Section 5.7, Non Consumptive Uses

- There is much data taken from a general California data base. We are assured that a more detailed profile of Northern California will be made available later. But as it is presented here, it gives a incorrect impression of North Coast activities. There is reference to the use of campgrounds and state parks and beaches for non consumptive activities. The accompanying charts lists a whole range of non consumptive activities for Beach goers, as if this is all they do. There is also a chart listing revenues generated at various coastal state parks. This is a selective reading of the reality. The implication is that these revenues are all generated by nonconsumptive users. But during abalone and recreational fishing seasons, a large portion of the coastal campground and state park users in the North Coast Region are, in fact, consumptive users - as should be readily evidenced by abalone catch location data (section 5.5-3, page 83, page 100 of the pdf) and state parks own use data. While it is true that the fishermen enjoy all the facets of the ocean experience that non consumptive users do, it would be a mistake to underestimate or overlook the impact of consumptive use on visitor numbers and enjoyment value.

Page 91 Table 5.7-1

- The numbers in this table reflect the numbers of California. These numbers must reflect North Coast Study Region only.

Page 91 5.7.1 Recreational Beach Use

- There are no numbers on this chart of the north coast, only California numbers and we know that we are not the same kind of tourist attraction as southern California, where there is much diving and kayaking for sport, not fishing.
- What is the average number of people from your total in California (18 mil) who participate in Kayaking or one of 17 non-consumptive activities? In other words, how does the north coast compare with other regions when it comes to non-consumptive users? We believe because of the rural and rugged terrain, that most people come here to kayak “fish” not just kayak and to “abalone dive” not just dive as you state.

Page 92, par. 1, sent. 4

“They also estimate that the total value of going to the beach, including market and non-market values, may exceed \$5 billion annually.”

- “It is estimated that the total value of going to the each, including market and non-market values, may exceed \$ 5 billion annually.”
- This number is referring to California as a whole. When in fact there was talk of closing the State Parks in the North Coast region due to lack of funds.

Page 92, Table 5.7-2:

- Most of Manchester Beach and all of Schooner Gulch Beach are not in the North Coast study region.

Page 93, par. 2

“ approximately 1.1 million surfers live in California, and \$7.48 billion dollar surf industry in the U.S.”

- Although surfing is a sport that takes place in the North Coast Study Region, we need to use real numbers for comparisons.

Page 93 Table 5.7-3

- Casper Cove has been left out of Mendocino surfing locations.

Page 93, Table 5.7-3:

- Most of Manchester Beach, and all of Moat Creek and Point Arena Cove are not in the study region.

Page 94, Table 5.7-4:

- This table will need some adjustments due to the adjustments to Tables 5.7-2 and 5.7-3 (see above).

Page 95 par. 2-6, Section 5.7.2 Boating and Table 5.7-7 Activities using private and rental boats

- A very misleading picture is painted. In its lead up to providing figures, the profile notes (emphasis mine): "Non-consumptive boat data is also collected as supplemental data from the DFG's CRFS program. The purpose of the CRFS is to estimate total marine recreational finfish catch and effort in California. CRFS staff conduct interviews of anglers returning to public launch ramps. Under the Primary Private Boat Survey, boaters are interviewed at primary launch ramps approximately eight days per month (Van Buskirk pers. comm. 2007). "Primary" launch ramps are defined as "those where the majority of the managed species, in any particular month, are landed" (PSMFC 2007). Supplemental data collected include the number of private and rental boats that are not recreationally fishing for finfish.
- Note that, the goal of the CRFS is to produce marine recreational fishery-based data to inform management of recreational fisheries and, therefore, may underestimate the number of nonconsumptive boat users because it focuses on public launch ramps where the majority of managed species are landed rather than a random sampling of public launch ramps."
- In Mendocino County, at least, there **are** no public boat launches other than the types where the figures have been obtained. There are perhaps 6 public launches in Coastal Mendocino County (including Pt. Arena), all of which are almost exclusively fishing related. (A minor point, in section 5.7-10 (page 97, page 113 of the pdf), Public Boat Launch or Hoist Locations, MacKerricher Park is listed. I don't know of any boat launch facilities there and this may be listed in error.)
- The data isn't skewed because of who and where it was collected. And yet in the interpretation of the raw data, a heavily slanted reading is presented. It states that 25% of Mendocino County boating was "not fishing". This does not mean they were non consumptive uses. An examination of the data presented indicates that the non-fishing category includes Enforcement (who are public agency owned boats, not private) .49%, Maintenance - 2.93%, Removing boat from slip, no fishing - 11.14%, and

Unidentified -5.57%. How can any of these be considered non consumptive uses for the purposes of a regional profile of private boats? I understand that there are limitations to the data available, but the profile should be realistic in its appraisal of that data. In our county of Mendocino, there **are** non consumptive uses, and the 4.69 % for Recreational Cruising probably covers it. But Coastal Mendocino County boating is almost exclusively fishing related, and the interpretation of the data should reflect that. Similar adjustments should be made for Del Norte and Humboldt Counties.

- Coastal Mendocino County isn't an area conducive to the types of pleasure cruising that occurs in Southern California. The establishment of MPAs can have a large effect on fisheries related boating, though I don't believe they will bring a corresponding increase to "non consumptive" boating. It's important to have accurate interpretation of data at the outset to aid in any evaluation of the effect of MPAs.

Page 96, section 5.7.2, Table 5.7-7:

- The title of table 5.7-7 is misleading and its data is flawed and misleading too. The last sentence in the third paragraph of page 95 says in part: the CRFS "...may underestimate the number of non-consumptive boat users because it focuses on public launch ramps..." You don't say the error may also include consumptive users (another example of Culture Bias). It isn't clear whether the CRFS did or didn't survey boaters in marinas or ports in areas other than public launch ramps. If the only boats counted were those returning to a public launch site, they have omitted a very large group including fishermen like me, who launch their boat one day, return to a berth or anchorage, make several trips over a period of several days then haul out. Usually on the day I haul out I don't go fishing. Table 5.7-7 recorded 38 boats "removed from slip, no trip" in Mendocino County alone. Consider my log data from the last year with a Salmon season (2007): I launched and retrieved my boat twice from 6/1/07 to 9/8/07. I did not fish on the two haul-out days but I fished a total of 34 days before haul outs. If all 38 boats were like me, then each haul-out would represent an average 17 trips each - a total of 646 (uncounted) fishing trips. This represents a huge error if the data is called "Activities using private and rental boats, 2007". Furthermore, the number of Commercial Fishing vessels hauling out in Mendocino County, as listed in Table 5.7-7, is 4, but most of Mendocino County commercial fishermen do not haul out daily, so this trip number is even more misleading. So I recommend changing the title of Table 5.7-7 to "Public Launch Ramp Use" and rewriting section 5.7.2 especially paragraphs 1, 3 and 4 to remove Culture Bias – including the factual statement that the majority of boating in the North Coast Study Region is directly involving consumptive use of resources.

Page 98, Table 5.7-11:

- Arena Rock is not in the North Central Region

Page 98

- Kayaking- much kayaking is kayak fishing. What is the percentage of kayak fishing compared to non consumptive kayaking?

Page 145 par. 6

“Synopsis of commercial regulations applicable to the north central coast study region:”

- This is the North coast study region.

Page 145 par. 6

“The minimum legal size for lingcod is 24 inches.

- North Coast study area lingcod minimum legal size is 22 inches

Page 145 par. 9

“The RCA for this fishery in the north central coast study region is from 20 to 150 fathoms.”

- This is the North coast study region.

### **North Coast Regional Profile Atlas**

- The maps that were provided with the draft are poorly defined and show very few public access areas. The California Department of Fish and Game provide much more detailed maps to their game warrants. These maps should be also used in this document
- MarineMap data for the North Coast has extensive data layers for pinnipeds, mammals, and birds – rookeries, foraging areas, and haulouts are dotted up and down the coastline in all 3 counties.

- Is there a numerical percentage of total birds or nesting sites, and marine mammal or pinnipeds haulout sites that will be required to be protected by “Special Closures”?
- Are these “Special Closures” areas that are calculated as a percentage of landscape dimension? Available forging grounds? Enforcement feasibility? Public access and levels of disturbance?
- Are mouths of rivers and estuaries, without ports, or docks, to be considered differently than rivers with ports and dock infrastructure regarding Marine “Special Closures”?
- How will “Special Closures” be handled where there are offshore rocks and sandy beach with easy public access? Will the percentage of these area (situations) which are a feasibility criteria (policy decision) be weighted across the entire study region or biogeographic sub region? Or within each bioregion?
- Will “special closures” be used in one biogeographic sub-region to compensate for lack of feasibility in another biogeographical sub-region?
- Referenced map document can be downloaded [here](#) (1.7 MB PDF) NCCRSR and commission IPA Special Closures 4 pgs

## **Suggestions for new or emerging data sets**

### **Scientific Errors and Omission**

There is no mention of the impacts of shift in effort of consumptive use of resources due to the existence of larger and more restrictive MPAs. You must include a section discussing this concept in order to better inform stakeholders and MLPAI staff. This section should include effort shifts due to influx from outside of the North Coast, for example abalone harvest shifting north from the North Central Coast, or from one area to another within the North Coast Region. A study of the South Central Study Region’s MPAs by ((\*\*))) is now available and should contain useful scientific information on shift of effort there. Here is some hard data to consider: abalone harvest is only allowed north of the Golden Gate. The North Coast has seen ((\*\*)) % of the total state catch. The North Central Coast MPAs closed access to 36 % of their Abalone habitat. According to DFG data the abalone taken from MPAs just in the area within 12 miles of the south boundary of the North Coast Study Region was 36685 in 2006. The take from the portion of that area that will be protected by MPAs will go from 19417 in 2006 to 0 in 2010. The people who harvested those 19417 abalone will be coming back to the coast again this year and those MPAs (and more to the south) will not be open. Many will be coming north into the North Coast study Region. Next year’s abalone data will show the results of displacement but that will come too late for the MPA planning on the North



Coast. What the abalone catch data shows us can be similarly shown as well for salmon, dungeness crabs, red sea urchins and rockfish. So we must anticipate from existing data and use Local Environmental Knowledge (LOK) and statistics to extrapolate logical predictions. It is the duty of the authors of this Profile to include a section discussing the issue of displacement. You should include enough data for Stakeholders and Staff to make informed decisions in size, spacing and location of MPAs.

### **Statistical Errors and Omissions**

There is no list or table showing data about boats moored in marinas, and harbors. You should include it. The data should include the port (Albion, Noyo, etc.), vessel size (<20 ft, 20-30 ft, etc), type (outboard, sail, etc.) and primary use (sport fishing, commercial fishing, non-consumptive recreation, etc.). You need to include it in addition to your other data including a re-titled Table 5.7-7 in order to more accurately show what North Coast Boating is about.

There is no reference to illegal activities or poaching in the whole document. The Department of Fish and Game has lots of statistics that should be addressed. Abalone Poaching is a major problem on the North Coast that must be seriously considered in choosing MPAs. You should also include the DFG statistics of bicatch/mortality of protected Rockfish (Yellow Eye, etc.) which needs to be addressed because it is a major factor in RCG complex management.

### **Additional Information on Abalone**

Abalone are NOT likely to benefit from MPA's in this region. Peer reviewed science (Karpov, et al, 2001) shows a lower abundance of abalone in the Point Cabrillo MPA compared to a heavily-fished area, Van Damme State Park. To the contrary, the MLPA will likely damage the sustainable abalone fishery by misdirecting funds from enforcement effort to combat poaching. Poachers will not observe MLPA regulations any more than they observe size and bag limits, seasons or lawful methods of take.

### **Additional Information on Bull Kelp**

- Harvesting of Plants "According to state law (CCR Title 14/Ch.4/Sect.30.10), no surfgrass or eelgrass may be cut or disturbed in California. There are 74 designated kelp beds in California which may be leased. Beds open to harvest by permitted companies exist around the entire perimeter of San Miguel, Santa Rosa and Anacapa, and about 75% of the coastline of Santa Cruz. Beds available for 20-year leases occur along ~25% the southwestern coast of Santa Cruz and entirely around Santa Barbara. In recent years ISP Alginates was the only company harvesting giant kelp in the Park,

but their activity now (2005) is restricted to the San Diego area and they will soon be moving operations to Scotland (Dan Richards, Marine Biologist, Channel Islands National Park, pers. comm.). Figure 68 shows the spatial distribution of average annual revenue from kelp harvest in Park waters from 1996-1999. At least during these years, kelp harvest was concentrated around San Miguel and Santa Rosa (Figure 68).”

- What is the total area of kelp beds in the study region individually assessed for each bio-geographical subregion and if possible by location and categorized by areas of estuarine influence?
- “Direct impacts to kelp beds may occur through commercial or recreational fishing in or directly adjacent to the beds, and **commercial kelp harvest** (DFG 2001b) Bull kelp has a typical life span of one year. Spores are released in the late fall and gametophytes develop during the winter months (Foreman 1984). By early spring the young sporophytes (a mature plant) typically appear (Vadas 1972). Bull kelp sporophytes are slow-growing for the first three to four weeks and then accelerate rapidly to canopy height by midsummer (DFG 2001b; Springer et al. 2006). Bull kelp typically dies by early winter with the onset of the winter storms.”
- During that one year cycle, healthy fronds reach the surface as canopy (for about 4 months) and are hand harvested across a spatial time span of approximately 1 month. In that span of time, harvests are constrained by access, wave height, swell, winds, and blemishes on the fronds. The niche market of edible algae requires a level of quality and handling that further constrain amounts removed. Most studies point to the effects of increased growth (kelp forest) due to increases in filtered light below the surface (photosynthesis response). What are the variants of kelp biomass by forest type and canopy growth and ecosystem function?
- How are the three dimensional characteristics of the two kelp forest types (often used in scientific literature) different in their species assemblages in the North Coast Study Region?
- June 2007 Kelp Bed 220 Monterey Bay (Amended Changes) Chapter 6
- **Specific Statewide Regulations on Kelp Harvest:**
- Specifically, the Department recommends a suite of changes to the existing management regulatory processes that became effective May 9, 1984 and March 26, 1996 (Sections 30 to 30.10 and Sections 165 and 165.5, Title 14, CCR, respectively) (Appendix 1). The recommended changes include: 1) an amendment to that clarifies what weighting methods are acceptable to determine the weight of kelp being landed; 2) an amendment that clarifies what information is required in landing records and what processes are to be followed in submitting reports (§ 165(b)); 3) amendments that further restricts harvest methods and seasons for bull kelp near the southern limit

of that species geographical range; 4) amendments that increase the number of kelp beds that are closed to harvest (§165(c)) to prevent focused or repeated harvest and limit risk of resource damage in those beds where there has historically been little kelp resource; 5) an amendment that specifically addresses resource use conflicts in bed 220 near Monterey by closing a portion of the bed; 6) an amendment that provides a mechanism for restricting harvest by explicitly allowing imposition of temporary harvest controls in beds or portions of beds where necessary for resource protection; and 7) an amendment that provides an easy method for interested parties to determine which kelp beds are currently available for leasing (§165.5 (b)).

- “Most Kelp water column and nutrient upwelling **studies are of giant kelp forests**. Growth of kelp is triggered by the interaction of light and nutrient availability, both of which are needed to support the high growth rates in kelp. While light is abundant in summer, nutrients are often depleted due to thermal stratification and phytoplankton production. In contrast, nutrients usually accumulate during the winter. This results in late winter and early spring as the main growing season for kelp because both light and nutrients are available.”
- “Plant growth can become nutrient limited in summer and fall, except where nutrients are continually replenished by tidal mixing. In Southern California Bight, nutrient levels are low in the summer and fall, especially above the thermocline, resulting in reduced *Macrocystis* growth and deterioration of the giant kelp canopies.”
- This seems to differ from the North Coast Region's ecosystem (dynamic as it is) variants regarding kelp distance from shore, interactions with the LME California Currents, upwelling currents, north and south food transport systems, onshore and river outflows (plumes) within the range of the species bull kelp, *Nereocystis* in the North Coast Study Region.
- Can the Ecotrust Spatial Data layer on MarineMap showing the annual growth cycle extent of “drift kelp” which I assume is a different category than a stationary seaweed like fucus or nori? Can this layer be time scaled, or temporally linked to location and ecosystem function?
- In annual kelp species, the gametophyte is the overwintering stage. “Over-wintering stage” is not really descriptive of the timeframes involved. The Draft Regional Profile does not do any better at describing this critical cycle. Canopy coverage may fall apart one frond at a time and drop off and new growth returns to the surface forming canopy in shallower waters. Select hand harvest of frond tips allows for regrowth immediately at the canopy level and no loss to regenerative capacity has been documented. Are the Laminaria included in this drift kelp data layer?
- Male and female gametophytes then produce sperm and eggs, respectively, which fuse into zygotes from which new diploid sporophytes grow out.

- “Canopy-forming kelp species, such as *Macrocystis* spp. and *Nereocystis luetkeana*, extend to the surface and thus, effectively block light penetration to the substrate below. Certain animals associated with the kelp forests, especially fishes, are specialized to live among the top floating part of the canopy, while others are specialized to live in the midwater section. The holdfasts host their own specialized community of associated invertebrates. Many benthic invertebrates are also associated with the smaller understory kelp species, which provide efficient shelter and three-dimensional habitat. A diverse community of red algae (e.g., *Gigartina* spp.) also thrives in the smaller understory. The presence and physical structure also influence hydrological properties, such as the slowing of currents. Resulting effects include increased sedimentation and accumulation of finer sediment in the low current areas within the kelp forests. The three-dimensional structure of kelp forests and the influenced physical oceanographic processes are noticeably different than adjacent non-forested areas.”
- How does the ecosystem function and structural description of a 'bull kelp' forest differ from the familiar 'giant kelp' forest? “Understory kelp species and benthic invertebrates, three dimensional habitat” – how do these descriptions fit the long stem of the “bull kelp” species and its holdfast over the vertical distance through the water column to the canopy?

**Bull kelp beds are leased** near Crescent City - as has been noted at BRTF and SAT meetings (111809) and (121609) in Eureka by the company Eco-Nutrients.

- Is it appropriate to consider the kelp distribution area (square miles) in the overall context of the western boundary of the study area – the State Waters demarcation? What of the kelp assemblage's eastern canopy edge (usually along shore, in coves, bays) and the actual distance from shore of the western edge of the canopy in the north coast region? This edge seems to end before where *Macrocystis* would start for the sake of commercial lease and harvest in regions to the south.
- The complex surface, crevices, and three-dimensional structures of areas with hard substrates support a variety of other plant and animal species. **Adjacent to these hard substrates are often unconsolidated sediment, which is commonly transported back and forth by wave action.** The kelp plant structure slows water movement, thereby allowing suspended sediment to settle to the bottom. Increased sedimentation rates may also reduce the recruitment rate and survival of gametophytes (Devinny and Volse 1978; Foster and Schiel 1992).
- This sounds like the situation at mouths of rivers and streams. But projected impacts due to sedimentation do not seem applicable in the north coast study region to the Bull Kelp 'forest' interaction with ocean nearshore tidal currents or the substrate associated with “bull kelp” and “drift kelp” data layers. Through flow of tidal action and nutrients even in bays is constant. During fall and winter when gametophyte production settles and waits for spring weather.

- Even so, are yearly survey data of the extent of kelp canopy, spatial projections of temporal analysis? Is there a “carrying capacity” index for “bull kelp” and associated species assemblages by substrate type and location to outflow sources of nutrients and sediment?
- Kelp depends on sufficient light availability for photosynthesis. Wave action keeps the fronds in constant motion, allowing maximum exposure to sunlight and enhancing uptake of nutrients (Barnes and Hughes 1993). Kelp plants have a minimum light availability necessary to perform net photosynthesis. The energy produced during photosynthesis is stored as the carbohydrate laminarin that can be used for growth if sufficient nutrients are available. The minimum light requirements differ for different kelp species; canopy-forming species often need more light, while understory species are often more low-light adapted. (Kinlan et al. 2003). Research results show that limiting light and nutrient resources can inhibit recruitment of embryonic giant kelp sporophytes.
- How do comparisons of light levels and wave action, water column temperatures and nutrient movement through kelp beds (drift kelp areas) differ in previous study regions when compared to the north coast region? How do ecosystem models in the North Coast Study Region account for these differences?
- Hand harvest of choice edible bull kelp frond tips is from the edge locations (where most harvest occurs) due to moving flows and nutrients, and has little if any effect on light levels reaching the lower strata of benthic communities. The fronds and the entire plant canopy and stipe already move in patterns bound only by swell, circulatory flows of nearshore currents, and length of stipe, causing a constant shifting availability of light below the canopy .
- Kelp forests fulfill important ecosystem functions, including:
  - Provides habitat and shelter/refuge for many plants and animals
  - Provides nursery and adult habitats that support species abundance and diversity
  - Provides breeding grounds for fishes and marine mammals
  - Provides feeding grounds for birds, fishes, invertebrates, and other marine organisms (Holbrook et al. 1990)
  - Provides substrate for attachment
- Filters water and stabilizes sediment
- By performing these functions, kelp forests are able to maintain plant and animal species diversity and abundance as well as support important recreational and commercial fisheries.

- Please explain the following biotic communities related to kelp dominance and the presence or lack thereof of these biotic communities in the North Coast 'Study' Region? This may require a breakdown to percentage of sub-regional biogeographical or regional analysis by species (*Macrocystis sp.* and *Nereocystis luetkeana*).
- “Kelp forests and macroalgal habitats support diverse communities that contribute to primary productivity, as well as support biomass production, biodiversity, and a complex trophic structure (discussed in various sections throughout this chapter). These communities and their rocky substrate provide habitat for many different marine organisms. The three-dimensional structure of kelp forests can be divided into functional sub-habitats used by various organisms: The canopy is the region where the blades of the canopy-forming kelp species reach the surface. The midwater area is dominated by the stipes and lower blades of the canopy-forming algae. The complex structure of the benthic layer is comprised of the understory kelp, other algae, and the substrate. Some organisms associated with kelp forests can utilize all of these sub-habitats, but others are specialized in using certain areas.”
- “Kelp canopies alone or in combination with one another can reduce the amount of light reaching the substrate to less than 1% of surface irradiance (McLean, 1962; Reed and Foster, 1984). During the winter months along the central California coast, increased water motion from winter storms removes kelp canopies thereby increasing the amount of light reaching the substrate, which in turn can have dramatic effects on the algal assemblages beneath them (Foster, 1982b; Reed and Foster, 1984; Breda and Foster, 1985). One common phenomenon occurring in areas where surface canopies have been removed is the recruitment of the brown alga *Desmarestia ligulata* (Foster, 1982a; Reed and Foster, 1984). This species forms a dense subsurface canopy which can inhibit recruitment of other algal species including giant kelp (Dayton et al., 1992).”
- “During the comment period for the first release of the MBNMS Kelp Report, the issue of *Nereocystis* utilization by kelp harvesters was raised. As stated above, north of Santa Cruz, the bull kelp, which occurs from Point Conception to Unimak Island in the eastern Aleutians, becomes the dominant canopy-forming kelp. However, none of the *Nereocystis* beds in the MBNMS appear to be of any great size (Van Wagenen, 2000).”
- “The effects of *Nereocystis* harvesting on the abundance and distribution of *Nereocystis* have been studied in British Columbia (Foreman, 1984). These studies can find little effect from harvesting at the site scales investigated, though Roland (1985) found that harvesting fronds can impede plant growth and reproductivity. However, *Nereocystis* is an annual plant (*Macrocystis* is a perennial plant), is limited in its MBNMS distribution, spore production is seasonal (late spring to the death of the plant in winter), and harvesting of *Nereocystis* removes the reproductive tissue

(unlike with *Macrocystis* harvesting) (DFG, November 1995). Therefore, there is a valid issue regarding the effect of localized, concentrated harvests of *Nereocystis* in the MBNMS. Such concerns would be particularly realized if such harvests occurred prior to spore release. California restricts harvests of *Nereocystis* north of Point Arguello (California Code of Regulations: Title 14, Section 165(c)(4)), because the beds are too important to the ecology in those areas. They also outright bans harvests in certain kelp beds north of San Francisco (DFG Kelp Beds #303, 304, 305, 306 and 307) because their production is too variable to allow harvest (Robson Collins, pers. Comm.)”

- p25 “The total Sanctuary-wide kelp resource canopy decreased from 16.918 square miles in 1989 to 14.053 square miles in 1999. The greatest loss in kelp canopy extent between the two inventories was observed within the Monterey Bay itself (DFG Beds #222, 221 and 220), and the greatest gain in kelp resource extent was noted in DFG Bed #217, between Yankee Point and Point Sur (Van Wagenen, 2000). [NOTE: Caution must be used in reviewing and comparing these data, which actually only represent two data points, separated by a ten year period. These data do not necessarily reflect long-term trends in kelp resource extent and distribution (Van Wagenen, 2000). Caution must also be extended to the idea that deciding on a point in time when kelp is at its maximum extent BEFORE the overflight occurs is challenging.]”
- p28 “It should also be noted in this section that there may be distinct differences in environmental effects caused by mechanical harvesting versus hand-harvesting. Many of the studies mentioned above, such as Miller and Geibel (1973), investigated kelp harvesting situations that more closely resemble effects that mechanical harvesters create. Hand-harvesters generally do not cut as deep or in as distinct a pattern as mechanical harvesters (Aaron King, pers. obs.; David Ebert, pers. Comm.) No studies are known that describe any environmental effect differences between the two methods of harvest.”
- p30 “Other more active uses of kelp beds include SCUBA diving, kayaking, and other sports. Kelp beds provide the environment that attracts many of these recreational users to the sport. Most of these “ecotourism” type industries are on the increase in the MBNMS area. One business in the area that rents and sells kayaks, as well as gives lessons on kayak use, has stated that between 1989 and 1999, kayak use from its shops has increased ten-fold (Cass Schrock, pers. Comm).”
- *following paragraph by Weinstein (1996), puts this into perspective:* “The Northern California Diver’s Association estimates that the number of divers in the central coast rose 10-20% in the 1980’s (R. Gallagher pers. comm.). Dive shops from Monterey Bay to Santa Rosa (north of MBNMS) made \$14 million in retail sales in 1994, plus about \$5 million in associated revenues such as lessons and boats. An estimated 95% of this revenue was generated in the Monterey Bay area (R. Gallagher pers. comm.). This value complements the findings of another study estimating SCUBA and

snorkeling revenue at \$13.2 million dollars in 1988 for San Mateo, Santa Cruz, and Monterey counties (Meyer Resources, 1990).”

- Aside from 3.2.2 Ecological Effects from Other Uses of Kelp generally speaking, other uses of kelp resources, while not directly tied to the “take” of kelp, could have an impact on the kelp forest and its ecology. Are the “bull kelp” areas (forests) a draw to recreational use? Mostly it seems people try to avoid them up here on the North Coast.
- For years in which overflight data is available and where there has been high kelp growth due to state-wide coastal upwelling, there may be very sparse kelp canopies. How is this temporal shift in canopy (not to mention percentage of error in the difficulty of timing overflights at the maximum bloom cycle) adjusted for calculation of the ecology of bull kelp (*Nereocystis*) in the North Coast Study region?
- Related Info From NMFP chapt 2 2002“ - Kelp forests off California are dominated by two species, the giant kelp and the bull kelp. Giant kelp can grow up to 100 feet and prefers the more calmer portions of the coast south of Point Conception. Large kelp beds have been identified in waters up to one mile offshore in the area from Point Conception to Gaviota and at San Miguel, Santa Rosa, and Anacapa Islands. Giant kelp is one of the most productive plants on earth able to grow 18 inches a day in full sunlight. While the giant kelp may live several years, the life of each frond is typically six months or less. It is to the kelp’s advantage to replace old fronds with new and buoyant fronds.”
- “Bull kelp is more resistant to the rougher waters outside protective bays and inlets. Some areas contain both species but, where colder waters dominate through out the year, bull kelp forms a monoculture forest. Bull kelp is an annual plant dying off each fall season while giant kelp is a perennial and may live seven to eight years. Kelp forests provide vertical water column habitat for many types of adult and juvenile fish, marine mammals such as the sea otter, and other marine animals.”
- “Kelp detached and transported during storms provides a source of food for other local habitats. Sandy beach fauna, from invertebrates to shore birds, utilize the kelp washed up on the beach. Kelp wrack can provide critical food resources for wintering shore birds. Kelp that sinks provides food for deep water benthic organisms which are dependent on drifting food. Kelp that detaches and forms floating rafts provides habitat for juvenile rockfish and other pelagic species.”



## **Our own first hand user knowledge**

### **Sea Urchin**

- In 1991 the last year of a three year study by DF&G the last sentence said if major management changes did not happen red sea urchins would be in trouble in the Van Damme study region which was also the same region that deep water abalone recruitment was low. Two months ago my partner and I on a rough day ten foot swell picked 2000 lbs of red sea urchin from Van Dam measuring though many under size urchins that will spawn and make many baby's. DF&G abalone records show it is one of the most dove spots on the coast and produces over 14000 abalone a year that are taken legally by law abiding people who recreate.
- And I have seen many deep water abalone stock that are safe from divers due to depth. This is an area that The California Fish And Game said was being over fished and was dying if something was not changed stocks would crash. In 2009 over 14000 abalone were taken from this area so any reasonable person after looking at the reports with today's knowledge would have to come to the conclusion that the science was miss-interpreted.
- My take is that the taking of sea urchins in deeper waters gave room for the abalone to grow and increase in numbers in deeper waters were less energy is spent on fighting tide forces and sense kelp is plentiful due to lower populations of red sea urchins that eat the hold fast of the kelp and killing the whole plant. Abalone now can eat lots of kelp and spend time reproducing instead of just trying to survive. The kelp forests are healthy the Urchins have plenty of food so they grow fast and reproduce creating a sustainable fishery in all three Urchins, Kelp (sea weeds) and abalone. Therefore we need to support the plan to open the Caspar urchin barren (closure) to allow the take of urchins and all other fish to show what happens when an area is fished properly and monitor it closely. Past monitoring records are extensive and a good baseline is already established.

### **Cultural Bias**

We would like to point out that this document tends to leave out the Local Ecological Knowledge (LEK) and to show a lack of recognition of local cultures. There is a definite Cultural Bias. The bias favors a more urban culture that considers nature to be something to visit or look at, (a non-consumptive approach) as opposed to the cultural belief of most of the rural coastal folks who believe that they are a part of the ecosystem and that consumptive involvement is not just OK, but a preferred lifestyle. This bias is unfortunate because the Marine Life Protection Act (MLPA) specifically requires local input. The MLPA Initiative has shown recognition of the need to involve more locals on the North Coast by changes in their process from what was done in previous study

regions, and there need to be adjustments to the Draft Profile, in order to better represent local culture and local knowledge.

The Cultural Bias, as included in the Draft Profile, will contribute to alienation of local people to the MLPA process and will pose a major negative contribution to the over-all goal of protection of resources for all users. Our motivations are to increase understanding between people with conflicting opinions of what's the best solution for dividing up the marine resources. We expect any scientific, scholarly document such as the Regional Profile of the North Coast Study Region to be objectively scientific, complete, and logical, and not divisive on a cultural level.

It is time for the MLPAI and others to acknowledge that an important part of the rural North Coast culture is catching and/or harvesting seafood for our own consumption. Those who are able do the harvesting will share their surplus with friends and neighbors who are less able. There is more to it than just "free food". To us locals, it is gratifying at many levels in many ways. You need to include in the section on Local Rural Communities (see 23. above) a subsection devoted to the concept of subsistence seafood gathering. This should be done so subsistence seafood gathering by all cultures is recognized as a legitimate issue and considered when MPAs are chosen.

Respectively Submitted,

AS MLPA Collective Comments from concerned citizens affiliated with:  
AHRA, MOCA and TRI County Work Groups, including:  
Dan Yoakum, Mike Carpenter, Thomas DiFiore, Jim Marten, Burce Campbell, Terry Nieves, Allen Jacobs, and Mark Taylor,

**From:** David G Anderson

**Sent:** Friday, January 15, 2010 9:11 AM

**To:** MLPAComments

**Cc:** Steve Chaney

**Subject:** Comments from RNSP on Draft North Coast Study Region Draft

Melissa Miller-Henson,

Attached are Redwood National and State Parks comments and suggestions for the Draft Regional Profile of the North Coast Study Region.

A comment about marbled murrelets was sent previously by Keith Bensen of the park.

Hard copy to follow by mail.

David G. Anderson

Fishery Biologist

Redwood National and State Parks

Orick, California 95555



**United States Department of the Interior  
California Department of Parks and Recreation**

Redwood National and State Parks  
1111 Second Street  
Crescent City, California 95531



January 14, 2010

Email address: [MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov)

MLPA Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, California 95814

Melissa Miller-Hensen,

Attached are Redwood National and State Parks comments for the December 2, 2009 Draft Regional Profile of the North Coast Study Region. I am sending them by email with a hard copy to follow.

Thank you for the opportunity to review the draft. I hope you will find our comments and suggestions helpful in improving the regional profile. We appreciate the work that went into this comprehensive document and look forward to working with you and your staff during the MLPA Initiative process.

If you have any questions or comments please contact me by phone at (707) 465-7771 or email at [david\\_g\\_anderson@nps.gov](mailto:david_g_anderson@nps.gov).

Sincerely,

*/s/ David G. Anderson*

David G. Anderson  
Fishery Biologist

(Attachment)

Redwood National and State Park Comments on the Draft Regional Profile of the North Coast Study Region (12-2-2009 Draft). Comments are listed by page number, section, and paragraph.

### **Executive Summary**

Page vii/Regional Overview/first paragraph: The actual shoreline (not straight-line distance which is consistently reported as 225 miles) of the north coast study region is reported as several values, 640 miles on pages vii and 3, but as 366 miles in Table 3.1-1 on page 8 and page 10 in the text. There is no explanation for the two different values reported.

Page viii/Ecological Setting, third bullet, last sentence: Salmonids (chinook salmon and steelhead) are species where estuaries serve as an important component of their life history and should be included in that summary.

Page ix/Ecological Settings/fourth bullet: *“Underwater pinnacles ~~likely~~ exist in the north coast study region; however they are not well mapped.”*

Page x /Ecological Settings/first bullet: Add chinook to the examples of anadromous fish found in the region, as steelhead, coho, and chinook are the three main anadromous salmonids found in the north coast region.

Page xii/Existing MPAs and Coastal Protected Areas/second bullet: I noticed that the Redwood National Park boundary here and elsewhere in the profile, is referred to in kilometers. Almost all the other distances in the profile are in miles. Why the mixing of metric and English measurements? (The boundary of the park extends out a quarter mile.)

### **1. Introduction**

General comment: There is no mention of the MPA process at the Channel Islands. Was that not part of the MLPA?

### **3. Ecological Setting**

Page 8/Table 3.1-1: Total shoreline length reported in the table as 366 miles. (See first comment above.)

Page 10/Depth contours/Table 3.1-3: Typo – Under the depth zone column, it should be intertidal to 30m, not 200m.

Page 12/Rocky Shores/Sheltered rocky shore: The text says that sheltered rocky shores make up roughly two percent of the rocky shore, but Table 3.1-4 reports it as <1.0% of sheltered rocky shores.

Page 14/Estuaries and Lagoons/fourth paragraph: Add word beaches - *“For example, Western Snowy Plover use many north coast locations as breeding and wintering sites, including **beaches** near the mouths of ....”*

Page 16/Estuaries and Lagoons/ Redwood Creek Estuary: RNSP monitoring of the Redwood Creek estuary shows that the mouth of Redwood Creek generally closes at the beginning or

middle of summer, in June or July, not at the end of summer. Clarification: coho, Chinook, and steelhead are federally listed. Coastal cutthroat is not federally listed (in Appendix D it is described as a state species of special concern (SSC)). Also, Lower Redwood Creek and the estuary have been degraded by the 3.5 mile Redwood Creek Flood Control Project levees. The biological and physical functions of the estuary are impaired by the levee channelization project.

Page 16/Estuaries and Lagoons/Stone Lagoon: Freshwater Lagoon is referred to as being part of Humboldt Lagoons State Park. It is in Redwood National Park, not Humboldt Lagoons State Park. The boundary of Redwood National and State Parks splits Freshwater Lagoon down the middle in the north to south direction.

Page 16/Estuaries and Lagoons/Big Lagoon: It might be useful to mention that Big Lagoon is threatened by the presence of the invasive New Zealand mud snail throughout the lagoon.

Page 17/Estuaries and Lagoons/Humboldt Bay/second paragraph: Here and on page 82 (section 5.4.3) oyster aquaculture is mentioned. Somewhere it should say that oyster aquaculture takes place in the Arcata (North) Bay.

Page 18/Estuaries and Lagoons/Eel River Estuary: General Comment - The sentence “*Much of what once was extensive salt marsh and other intertidal habitat has been converted to farmland by dike construction; however, these areas still function as wetlands when flooded by winter rains.*” These areas function as **freshwater** wetlands, not tidally influenced wetlands that are more important to marine/estuarine fish. They are by no means equal in value, a seasonal winter wetland versus what used to be year-round marsh and intertidal wetland habitat. The estuary is still degraded physically and biologically by the constricting dikes.

Page 20/3.1.4 Seagrass Beds/second paragraph: It quotes the removal of “284 square miles of dwarf eelgrass” (in Humboldt Bay?), but on page 17 Humboldt Bay is listed as only being 30 square miles in size.

Page 24/3.3.10 Offshore Rocks and Islands/third paragraph: The sentence “*Reading Rock, located eight kilometers west of Gold Bluffs Beach in Redwood National Park, is an isolated offshore rock rising approximately three meters above sea level.*” reads like Reading Rock is in Redwood National Park, which it is not. Change to “west of Gold Bluffs Beach which is **within** Redwood National Park” or “**offshore** of Redwood National Park. Also, the reported height in the text of Reading Rock is wrong. Reading Rock is much taller than three meters in height, many multiple times that.

Page 26/3.2.1 Depleted and Overfished Species: Typo – it says “*the south coast study region*”, you mean the **north** coast study region.

Page 28/Abalone: Typo? Change “**deplete**” to “depleted”.

Page 28/Black Abalone: It mentions that “*the final status report for black abalone will be out in the spring of 2008.*” It is 2010, is there update to that sentence and reference?

Page 29/3.2.2 Fished Species of Interest/Nearshore Finfish/first paragraph: The sentence “*Collectively, these species are relatively long-lived, slow-growing fish that take several years to reach maturity and spawn.*” Would you give an example for a rockfish species of just how many years is “*several years*” to reach spawning age and the natural life span of rockfish? It would help someone realize that a population fished on heavily will affect the number of fish that reach age of spawning and if the older, larger, more fecund fish are gone, the population size and resiliency will suffer.

Page 29/3.2.2 Fished Species of Interest/Black rockfish/first paragraph: Add a comment on the use of intertidal pools as nursery habitat by juvenile black rockfish.

See recent Humboldt State University Master Theses -

Lomeli, Mark J. M. 2009. The Movement and Growth Patterns of Young-of-the-Year Black Rockfish, (*Sebastes melanops*) Inhabiting Two Rocky Intertidal Areas off Northern California (downloadable at <http://dscholar.humboldt.edu:8080/dspace/handle/2148/516>)

Studebaker, Rebecca S. 2006. Use of rocky intertidal areas by juvenile Sebastes in northern California (downloadable at <http://dscholar.humboldt.edu:8080/dspace/handle/2148/70>)

Page 36/Fish/Salmonids/Chinook salmon: The last line of the paragraph “*Large populations of spring-run Chinook salmon used to occur in at least 20 streams in the Klamath-Trinity drainage, but they have been reduced to largely five locations (Smith River, Redwood Creek, Mad River, Mattole River, and Eel River), and there is no evidence of recent spawning in these locations (Moyle et al.1995).*” was incorrectly interpreted from the reference.

The Moyle (1995 page 38) reference mentioning the five coastal rivers reads as “*There were large populations in at least 26 streams in the Sacramento-San Joaquin drainage and at least 20 streams in the Klamath-Trinity drainage (CDFG 1990a). Spring chinook are now reduced to scattered populations in the Klamath, Trinity, and Sacramento drainages (Campbell and Moyle 1991), with small numbers (probably strays) found on occasion in the Smith River, Redwood Creek, Mad River, Mattole River, and Eel River. There is no evidence of recent spawning in the latter five rivers.*”

Edit the incorrect interpretation to include the correct information as to the remaining Klamath-Trinity spring run populations from the Moyle reference “*In the Klamath drainage, the principal remaining run is in the north and south forks of the Salmon River and in Wooley Creek, a tributary to the Salmon River. The South Fork and North Fork of the Trinity River and possibly the New River, also support a few fish (CDFG 1990). The large run of spring chinook in the mainstem Trinity River is apparently maintained entirely by hatchery production.*”(Moyle et al 1995)

Page 38/Fish/Eulachon: In March 2009, NOAA proposed listing as a threatened species the southern distinct population segment (DPS) of eulachon (Federal Register 74(48) March 13, 2009 pp 10857-10876). The Southern DPS is from British Columbia to the Mad River), covering from the OR/CA border to the Mad River in the north coast study region.

Page 39/Pinnipeds/Pacific Harbor Seal: The last sentence of the paragraph is incomplete and over emphasizes the Klamath without mentioning other areas where habitat use is documented (e.g. Humboldt Bay). [One of the RNSP wildlife biologists counted 100 harbor seals at the mouth of Mad River last weekend.]

Page 40/Pinnipeds/Northern Elephant Seals: General comment – Would not characterize them as fairly uncommon, but as uncommon. There is a breeding population on Castle Rock offshore from Crescent City and they show up hauled out on beaches in the park.

Page 41/References for Chapter 3/Borgeld reference: The Borgeld reference should be referenced as:

Borgeld, J.C., Crawford, G., Craig, S.F., Morris, E.D., David, B., Anderson, D.G., McGary, C., and Ozaki, V. 2007. Assessment of Coastal and Marine Resources and Watershed Conditions at Redwood National and State Parks, California. Task Agreement J8485040011 with Humboldt State University Foundation. Natural Resource Technical Report NPS/NRWRD/NRTR—2007/368. National Park Service, Fort Collins, Colorado.

#### **4. Land-Sea Interactions**

Page 50/Ecological Linkages/Marine fish: Include rocky intertidal pools as habitats that the pelagic larvae recruit to (see previous comments or page 29).

Page 50/Ecological Linkages/Anadromous fish: Last sentence of the paragraph says that stocks are “limited”. The word “limited” is unclear and there is a better word to describe the declining stocks.

Page 52/4.3.1 Point Sources/Table 4.3-1: Pollutant point sources: The National Park Service Requa Waste Water Facility that treats sanitary water was shut down in September of 2009 when the park maintenance facility at the site closed. Could you put an asterisk and footnote to indicate this facility has been deactivated.

Page 52/4.3.1 Point Sources/Stormwater Discharge: Include in the examples - oil pollutants from vehicles from road runoff that is discharged as stormwater discharge.

Page 53/4.3.1 Point Sources/Urban Areas: include in examples of pollutants oil products. Also, as long sections of Highway 101 and Highway 1 are in close proximity to the coastline, they are continual sources of oil pollutants from road runoff and have a high potential for spills from accidents both gas/diesel and additionally from tanker trucks. Our experience at RNSP has been the occurrence of several accidents over the years where pollutants from tankers and vehicles have entered the streams adjacent to highways (e.g. highways 101 and 199).

Page 54/Ports, Harbors, Marinas and Associated Vessels/third paragraph: The text refers to “*roughly 84 commercial vessels identified their home port within northern California*”, but on page 99 (5.8.2 Vessel Traffic section) it says “*approximately 220 registered commercial vessels list the Humboldt Bay port complex as home port* “. There is a disparity in the numbers reported.



Is one referring to large commercial tanker/freighters and the other including the smaller commercial fishing boats?

Page 55/4.3.3 Impaired Water Bodies in the North Coast Study Region: This section has many mistakes because the wrong source table was used. It starts off talking about 303(d) listed bodies of water and segues into determining total maximum daily load (TMDL) limits and implementation plans that are supposed to correct the problems causing the 303(d) listing.

Redwood Creek is 303(d) listed for temperature **and sedimentation**.

#### **1 R Redwood Creek HU, Redwood Creek 10700000**

##### **Sedimentation/Siltation 332 2004**

*Redwood Creek was added to the 303(d) List in 1992. A draft Sediment TMDL was developed by the Regional Water Board staff, which was subsequently established as a final TMDL by US EPA in December 1998. The TMDL confirmed that Redwood Creek is impaired by sediment. A review of all readily available information for this 303(d) List update, shows that there is continued impairment or threat of impairment in Redwood Creek by sediment, and continued listing is warranted.*

But, in the text it is only “*listed as a TMDL site for temperature*”. Because you used the table, 2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLS from [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/docs/303dlists2006/epa/r1\\_06\\_303d\\_reqtmlds.pdf](http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r1_06_303d_reqtmlds.pdf), a status table that lists 303(d) impaired bodies that **still to be addressed by TMDL plans**, Table 4.3-2 does not include a complete listing of all the pollutant/stressors and 303(d) impaired bodies that are already addressed by TMDL plans. Redwood Creek has a TMDL for sedimentation and that is why that stressor did not show up in the table you used.

For the complete list go to

[http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/303d\\_lists2006\\_approved.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_approved.shtml) and find the section 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments with the three categories: Requiring TMDLS, Being Addressed by USEPA Approved TMDLS, and Being Addressed by Actions Other Than TMDLS. There is a pdf and excel file there with all the complete information – 2006 CWA Section 303(d) list of Water Quality Limited Segments (Those requiring TMDLS (A), being addressed by USEPA approved TMDLS (B), and being addressed by actions other than TMDLS (C))\*

Page 59/Hydrokinetic Energy: Add locations of the presently ‘permitted’ Humboldt County wave energy ocean sites.

## **5. Socioeconomic Setting**

Page 70/5.3.1 Port Complexes/Table 5.3-1: For the Eureka port complex for Del Norte County is it possible to put “Crescent City (Eureka Port Complex)” to make it less confusing?

Pages 75 and 76/Table 5.3-2 and Table 5.3-3: Please define the bottom line of the table – Percent of total landings. The percentages do not make sense either for both tables. For example, in Table 5.3-2 you took the total average annual landings for the north coast study region 35,728,667 and divided it into the total (state waters) for Del Norte 5,713,713 and got 16%, but what does that mean?

Page 77/5.3.3 Commercial Landings/second paragraph last sentence: Typo – Should south coast be north coast?

Page 82/5.5.3 Aquaculture Leases: According to the Humboldt Bay Harbor and Recreation District website the tidewater leases in the Humboldt Bay were granted by the harbor district, City of Arcata, and City of Eureka. These are not “*private organizations*” as referred to in the text, they are local cities and special districts. Also, it mentions the size of the leases, but no total for all the lessees, and how much of that total is actually in production.

Pages 82 and 83/Recreational Fisheries/second paragraph: Refers to Table 5.4-1 but should be Table 5.5-1. Same with reference to Table 5.4-3, should be Table 5.5-3.

Page 83/Table 5.5-1: What are the units for this table, numbers of fish x1000?

Page 84/Table 5.5-2: Does Eureka include Trinidad? Are you referring to the port complex by county?

Page 89/first paragraph: Typo – “(see ), should be (see Table 5.6.1).

Page 92/5.7.1 Recreational Beach Use/first paragraph: Should that be \$2.5 **billion**, not million?

Page 94/Table 5.7-5: Tide pooling sites: Enderts Beach is within Redwood National Park.

Page 95/5.7.2 Boating/last paragraph: The text mentions 13,315 registered recreational vessels, but Table 5.7-8 includes pleasure vessels too. Can you define or explain what is the difference between a pleasure vessel and a registered vessel as all vessels over x number of feet must be registered with DMV?

Page 98/Table 5.7-11: Redwood (not “*Redwoods*”) National Park – 40 miles of coast is in both Humboldt and Del Norte County.

Page 99/5.8.2 Vessel Traffic: See previous comment for page 54. Is there a breakdown in terms of vessel size or tonnage of vessel traffic for the “*over 500 vessels from other west coast ports that use the bay’s facilities*” (i.e. are most of these vessel fishing or sail boats? How many are freighters?). With the closure of the mill, has the number of heavy tonnage vessels decreased? The harbor district recently eliminated one of the two bar pilot positions they employ because of the reductions of freighters coming to Humboldt Bay.

Page 99/5.8.2 Vessel Traffic: Both the Kure and the Stuyvesant oil spills, 50 miles south of Redwood National and State Park affected park natural resources. Oiled birds were found on park beaches and birds were killed offshore adjacent to the park.

Page 99/5.8.2 Vessel Traffic: General comment – No mention of offshore commercial ships transiting offshore of the north coast study region? There is a considerable amount of commercial ship traffic off the RNSP shoreline which would include the study region. Oil tanker traffic passing offshore of the parks from Alaska to refineries in California as well as non-tanker

vessels carrying bunker fuel was 3,658 vessels between July 1998 and June 1999 (The Pacific States/British Columbia Oil Spill Task Force 2002 [http://www.oilspilltaskforce.org/wcovtrm\\_report.htm](http://www.oilspilltaskforce.org/wcovtrm_report.htm) ). Closer to the park coast, commercial fishing vessels are fishing offshore of the parks. The coastline is also difficult to navigate due to fog and numerous offshore rocks, hence ship wrecks and oil spills are a definite possibility. Most experts agree it is not a question of whether, but rather when, a future spill will occur. These points are the same for the north coast region.

## 6. Academic Institutions, Research, Public Outreach and Education

Page 105/6.1 Marine Research Institutions in the North Coast Study Region: The text mentions the Telonicher Marine Institute, do you mean the marine laboratory?

Page 105/6.1.1 Scientific Research and Collecting/third bullet: the marine laboratory is located not near Trinidad, but **in** Trinidad.

Page 106/6.1.1 Scientific Research and Collecting/second bullet: State the location of Dock B – Eureka ...”and Dock B **in Eureka.**”

Page 106/6.1.1 Scientific Research and Collecting/sixth bullet: Are there 11 PISCO intertidal sites in the north coast study region? I know of six intertidal community structure sites, the three in the park, Enderts Beach, Damnation Creek, False Klamath Cove, and three more to the south, Cape Mendocino, Shelter Cove, and Kibesillah Hill. (There are five more in Oregon.)

Page 107/6.1.1 Scientific Research and Collecting/second bullet: The bullet about Redwood National and State Parks- we worked with high school students selected from around the nation **not** local high school students, and it was a nearshore inventory using *seasonal trawling and hook and line fishing*, not studying the effects of such.

Page 108/6.1.1 Scientific Research and Collecting/second bullet: The City of Arcata’s first wastewater primary treatment plant was built in 1949. The Marsh and Wildlife Sanctuary did not exist then. It was not until 1979 that planning for a marsh and wildlife pilot project began. The entire project was completed in 1986. That is somewhat different from what the first sentence of the text implies.

Page 110/6.2 Public Education and Outreach/third bullet: In the first sentence, the correct name is Redwood National and State Parks, not Redwood State and National Parks.

Page 113/ Table 6.2-1: Academic, research and educational institutions with a focus on coastal and marine systems: The contact for HSU Northern California Institute of Marine Sciences, Greg Crawford has left HSU for Canada. Is there a new contact?

## 7. Jurisdiction and Management

Page 118/The National Park Service (NPS): Traditionally, we use “of **present** and future generations.”

Page 119/7.1.2 State Agencies and Programs/The California Department Fish and Game (DFG): Why no mention of DFG's Office of Spill Prevention and Response (OSPR)?

Page 119/Table 7.1-2 California State Parks: Spelling error, it should be **Tolowa** Dunes, not Tulowa.

## 9. Conclusion

Page 129: The bullet that describes "*several large rivers, including the Klamath, Eel and Mattole rivers*". The Mattole is not a large river when compared to the Klamath and Eel. A better example would be the Mad River or Mad River in place of the Mattole.

Page 129/last bullet: Humboldt State University is located in Arcata, not Eureka.

Page 138/Appendix B/Profile of Commercial Fisheries/Table B-1: The primary commercial gear for smelt is A-frame dip net, not hook and line. (It was correctly referenced as A-frame dip net on page 32, True smelts section.)

Pages 143, 145, 150 153,154/ Profiles of Major Commercial Fisheries in the North Coast Study Region: For several of the highlighted profiles of commercial species (i.e. hagfish, lingcod, nearshore finfish, Chinook salmon, smelt, and surfperch) the "*north central coast study region*" is mentioned in the text and the header "*Synopsis of commercial regulations applicable to the north central coast study region.*" If this is text that should have been changed when inserted in the north coast study region profile, are the regulations described for north central coast study valid for the north coast study region?

Page 156/Appendix C/C2.1 Catch and Effort by CRFS Sampling: Typo – In the text is should be Figure C-1 and C-2, not IV.

Page 163/Appendix D: Special-Status Species Likely to Occur in the Study Region/Table D-1: Several of the listings are not up to date and Steller sea lion is missing from the table. Steller sealion (*Eumetopias jubatus*) is federally listed as Threatened (T). Green sturgeon is federally listed as Threatened (T). The Sturgeon southern DPS (Eel River and south) was listed on April 7, 2006. Eulachon, the southern DPS, is proposed for federal listing as threatened (PT). I did not check the entire table, only those I was familiar with.

[End of comments]

**From:** InterTribal Sinkyone Wilderness Council  
**Sent:** Friday, January 15, 2010 6:43 PM  
**To:** MLPAComments  
**Cc:** Ken Wiseman; Roberta Cordero  
**Subject:** Sinkyone Council Comments on Profile

Dear MLPA Initiative:

Attached in pdf format is the InterTribal Sinkyone Wilderness Council's **Comment Letter** regarding the *Draft Regional Profile of the North Coast Study Region*.

We have faxed it to your offices in Sacramento, and have mailed the original to you via U.S. Postal Service.

Please confirm your receipt of this email and attached letter.

Sincerely,  
**Hawk Rosales, Executive Director**  
**InterTribal Sinkyone Wilderness Council**  
**Ukiah, CA 95482**



# InterTribal Sinkyone Wilderness Council

P.O. Box 1523 Ukiah, CA 95482 Phone (707) 468-9500

## InterTribal Cultural Conservation for Sinkyone Indian Lands



January 15, 2010

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**Hawk Rosales**  
Executive Director

**Janene Ilar**  
Administrative Assistant

Marine Life Protection Act Initiative  
California Natural Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

Sent via mail, email, and facsimile

### **RE: Comments on the *California Marine Life Protection Act Initiative Draft Regional Profile of the North Coast Study Region***

To Whom It May Concern:

The InterTribal Sinkyone Wilderness Council (Council) submits these comments in order to highlight the principal deficiencies in the Draft Regional Profile with regard to the Council's interests and perspectives. The Council is comprised of 10 federally-recognized Indian Tribes in Mendocino and Lake Counties, including: Cahto Tribe of Laytonville Rancheria; Coyote Valley Band of Pomo Indians; Hopland Band of Pomo Indians; Pinoleville Pomo Nation; Potter Valley Tribe; Redwood Valley Band of Pomo Indians; Robinson Rancheria; Round Valley Indian Tribes; Scotts Valley Band of Pomo Indians; and Sherwood Valley Band of Pomo Indians. Founded in 1986, the Council is a non-profit Tribal environmental consortium working to re-establish local Indian stewardship within the Sinkyone region of Northern California through land conservation, habitat restoration, and traditional cultural resource management. As a Tribal environmental organization that cares deeply about preserving the environment through traditional and cultural stewardship practices, we share the goal of protecting marine resources along the coast for present and future generations. At the same time, the Marine Life Protection Act Initiative must respect and protect the aboriginal right of the Council and its member Tribes to continue to use the marine resources and coastal areas on which they have customarily relied for food, medicines, ceremonies, cultural activities and spiritual meaning since time immemorial.

To that end, we have conducted a preliminary review of the *Draft Regional Profile of the North Coast Study Region* regarding its portrayal of Tribes and Tribal interests. Our comments are necessarily preliminary in nature, because the short time frame given Indian Tribes to review the Draft has not permitted a more thorough and comprehensive analysis. The Council has requested an extension of time to permit this analysis in a letter submitted to MLPA Initiative Executive Director Ken Wiseman on January 14, 2010.

We are frankly shocked at the deficiencies in the sections of the Draft, which purports to address Tribal rights and interests. Even a cursory examination shows that the treatment of Tribes in the Draft is grossly insufficient. Put simply, the Draft fails to adequately address important Tribal concerns. The superficial treatment of over 20 distinct, sovereign Indian Tribes in the North Coast Region, and their use of marine resources for subsistence, traditional, cultural, ceremonial, religious, and other uses since time immemorial, is wholly unacceptable.

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**InterTribal Sinkyone Wilderness Council is a Nonprofit Consortium of California Indian Tribes**

● **Cultural Conservation** ● **Native Stewardship** ● **Watershed Rehabilitation** ● **Cultural Ecology Education**

The Draft's incomplete assessment of Tribal interests and uses is especially dismaying, because the effect is to denigrate the important relationship that our sovereign member Tribes have had with marine resources and coastal areas for countless generations. These problems in large part should be attributed to the State's failure to conduct meaningful consultation with North Coast Indian Tribes during the preparation of the Draft. Substantial additions and revisions are required to make the Draft accurately and thoroughly reflect the cultures, history, and legal status of Indian Tribes in this portion of the Initiative.

In light of these deficiencies, we strongly recommend that a chapter be added to the Profile which specifically addresses Indian Tribes and their traditional and cultural resource uses in the Region. The number of Tribes, their documented connections to the areas under study and the significance of their interests justify this expanded treatment. To avoid the mistakes of the first Draft, this Chapter should be developed in consultation with Indian Tribes and their members. While we understand that the Initiative has established a time line for the completion of its tasks, this time frame clearly was not developed in consultation with Indian Tribes. Although the revisions we propose may prolong the final completion of the Initiative's work, a fair and thorough understanding of Indian Tribal histories and cultures is absolutely critical to the success of the Initiative. Incorporating this understanding at this stage should be a priority of the Initiative, as it will help prevent more difficult and perhaps insoluble problems in the latter stages of the process. At minimum, the Initiative should understand that Indian Tribes would not endorse the final result of the Initiative if their interests have not been taken seriously at each stage of the process. The Draft is one of the first tests of the Initiative's commitment to doing the right thing in its relationships with the region's Indian Tribes.

We provide a brief overview of our initial concerns with the Draft Regional Profile here:

- Pg. xi of the "Executive Summary" should be amended to include "co-management" in its description to reflect the possibility that Tribes may enter into co-management agreements.
- Section 5.2 ("Native American Coastal Communities") in Chapter 5 of the Profile ("Socioeconomic Setting") should be expanded to accurately reflect how many Indian Tribes currently inhabit the North Coast region. Descriptions of cultural, traditional, consumptive, and non-consumptive uses should be expanded and made more specific where possible. The Council can provide additional information to assist the MLPA Initiative in more accurately describing Indian Tribes in the Mendocino County and southern Humboldt County areas of the North Coast Region. We hereby request that such information be included in this Section.
- Section 5.2.1. ("Native American Resource Use") should be expanded to more accurately reflect current resource use by Indian tribes in the Region. Much of the section is written in the third person and past tense, failing to account for the present day resource uses of Indian tribes in the North Coast. The Council would be pleased to provide further information and alternate language and hereby requests that additional language developed by Tribes be included in this Section. The following additional deficiencies appear in Section 5.2.1:

- It states that “[s]ome Native American people have indicated that they are an intrinsic part of the ecosystem. . . .” This language is inadequate and incomplete. The Council hereby requests that this language be amended to more accurately reflect the views of each North Coast Tribe in accordance with their unique Tribal cultural views. Just as the Regional Profile assessed each unique marine resource, the Regional Profile must address each Tribe and their unique cultural, traditional, and present day use of marine resources in order to adequately portray Indian tribes in the North Coast.
  
- It states that “some maintain that they have aboriginal rights in these areas.” This superficial blanket statement is a woefully inadequate assessment of Indian Tribes in the North Coast Region. The Council submits that *all* of its member Tribes maintain that they have aboriginal rights in the coastal areas where they have traditionally used marine resources. Furthermore, if the Initiative had consulted with each of the Tribes in the study region, it would have learned that all of the Indian Tribes located in the North Coast similarly maintain that their aboriginal rights to coastal marine resources have never been extinguished. Therefore, the Council hereby requests that, upon the conclusion of Tribal consultation, this language be amended to accurately reflect the position of each Indian Tribe that has been using coastal resources since time immemorial in the North Coast Region.
  
- It states that “[s]ome Native American People assert that restrictions for these uses cannot be designated in those cultural use areas.” Again, the Council submits that *all* of its member Indian Tribes maintain the position that the State does not have the authority to restrict Tribal cultural, traditional, subsistence, ceremonial, religious, and other uses of marine resources. The Council hereby requests that this language be amended, after Tribal consultation with *each* Indian Tribe in the Region, to accurately reflect the views of Indian Tribes in the region that have traditionally used marine resources on their ancestral Tribal lands. Tribal consultation will likely reveal that North Coast Tribes maintain that they have aboriginal rights in coastal areas and submit that state restrictions should not apply in their traditional and cultural marine use areas.
  
- It states that MPA “decisions may affect these traditions.” This language must be revised to more accurately reflect how seriously a restrictive MPA designation would impact an Indian Tribe and its Tribal members. It is the Council’s view that if Indian Tribes and their members are denied the use of their traditional ceremonial and gathering areas along the coast, such a denial is much greater than a loss of traditional foods and medicines– it is nothing short of the destruction of their Tribal culture, Tribal identity, and Tribal sovereignty. This grave impact on Tribal culture must be accurately presented in the Regional Profile and the Council hereby requests the inclusion of additional language to more accurately reflect the views of Tribes in the North Coast Region.
  
- Section 7.1.4 (“Native American Jurisdiction and Treaty Rights”) should be expanded to provide further information on each unique Tribal government in the North Coast Region. Language regarding the inapplicability of state laws and regulations to Indian lands should be included in this section. Further language should be included that accurately reflects the fact that Tribes in the North Coast assert that their Tribal members should be exempt from MPA restrictions altogether under state law in their areas of traditional cultural use. It may be appropriate to provide a brief overview of Public Law 280 for inclusion here. The Council would be pleased to provide additional language for inclusion in this Section and hereby requests that this Section be expanded to more adequately address these issues.



These and other deficiencies can be addressed in a separate chapter devoted exclusively to Indian Tribes in the North Coast region. This would provide opportunity for more thorough and specific information regarding each Tribe and its Tribal government, Tribal culture, and the traditional, subsistence, cultural, religious, commercial and other ongoing uses of the coastal areas (including aboriginal territories) applicable to each specific Tribe. An expanded discussion of jurisdictional issues and the opportunities for Tribal consultation and Tribal co-management agreements should also be included. Tribes may wish to include maps of aboriginal territories and traditional coastal use areas, if culturally appropriate.

Tribal consultation is necessary to produce a Regional Profile acceptable to the Tribes in the Region. Without meaningful consultation, it may be impossible to develop proposals that protect marine resources while at the same time protecting and respecting the rights of California Indian Tribes and their members to practice their traditional ways of life.

The Council would be pleased to provide additional language for inclusion in a chapter addressing Indian Tribes and Tribal resource uses in the North Coast Region. The Council would appreciate an opportunity to meet and discuss the serious concerns we present here. In light of our concerns, we ask that you not finalize the Draft without consultation and revision along the lines we have suggested.

We look forward to working with the MLPA Initiative to correct the deficiencies in the Draft Regional Profile. Thank you for your consideration.

Sincerely,



Priscilla Hunter  
Chairperson

cc: Alexander, Berkey, Williams & Weathers LLP  
Yurok Tribe

From: Janet Eidsness  
Sent: Friday, January 15, 2010 12:28 PM  
To: MLPACComments  
Cc: Janet Eidsness; Michelle Fuller  
Subject: Comments, Draft North Coast Regional Profile, Blue Lake Rancheria

Please accept and consider the attached comments on the subject document that are provided in a MS Word file format that shows recommended edits to original draft text in "track changes" tools mode.

These comments are submitted on behalf of Tribal Chair Claudia Brundin of Blue Lake Rancheria. Response can be made to the return (cc:) addresses or by mail to P.O. Box 428, Blue Lake, CA 95525.

Please acknowledge receipt.

Thank you.

JANET P. EIDSNESS, M.A., Registered Professional Archaeologist  
Consultant in Heritage Resources Management Co-Chair, Native American Programs Committee, Society for CA Archaeology Member, Archaeological Resources Committee, State Historical Resources Comm.  
THPO for Blue Lake Rancheria

**Comments and Suggested edits to CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE DRAFT REGIONAL PROFILE OF THE NORTH COAST STUDY REGION (ALDER CREEK TO THE CALIFORNIA-OREGON BORDER), December 2, 2009 Draft**

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Prepared ~~Submitted by~~ Janet P. Eidsness, ~~Tribal~~ Tribal Heritage Preservation Officer (THPO) for Blue Lake Rancheria (~~draft~~ 1/7/1(1/15/10), jeidsness@bluelakerancheria-nsn.gov)

Submitted 1/15/10 by Claudia Brundin, Chairperson, Blue Lake Rancheria  
P.O. Box 428 Chartin Road, Blue Lake, CA 955250)

Comments and suggested edits to main body of draft text (reproduced below) are noted in “track changes,” except as indicated and underlined below.

**Title/Cover page:** Suggest using photograph of culturally significant Native American place (e.g., Oregos, culturally significant rock at mouth of Klamath River important to Yurok; or Trinidad Head, also significant to Yurok) or other (Regalia – e.g. local Indian man dressed in World Renewal Ceremony/White Deerskin Dance ceremonial regalia, e.g., with sea lion tusk headdress, or young Indian woman dressed for Brush Dance with shell beads in necklaces and dress).

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## 5.2 Native American Coastal Communities [page 68]

Native American ~~tribal~~ Tribal people, also referred to as Indigenous Peoples, declare they have inhabited the north coast of California since time immemorial. Archaeological evidence discloses an approximate 12,000 year record of Native American occupation along the north coast (Hildebrandt 2007; Moratto 1984). The north coast study region has the largest population of Indigenous Peoples and greatest number of Indian Tribes of any of the MLPA study regions (Census Records). This study region is unique for many Tribal people continue to live in their ancestral homelands and practice age-old cultural traditions, for over 12,000 years, and relying on deeply rooted knowledge of rely on the coastal and, ocean and terrestrial resources important to on-going cultural for a variety of important uses, such as spiritual, ceremonial, cultural, training, travel, subsistence, harvesting, and gathering (Rocha, pers. comm. 2009; Erlandson et al. 2007; Anderson 2006). Their identities as Indigenous Peoples are intimately linked to the ocean, beaches, rivers, estuaries, bays, lagoons and their associated plants and animals, rocks, landforms, and climatic and seasonal patterns.

As an intrinsic part of the ecosystem, Indigenous Peoples strive to steward the environment in a sustainable manner based on their traditional ecological and cultural knowledge (Anderson 2006;

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Eglash 2002; Heizer and Elsasser 1980). In the north coast study region, ~~there are a number of tribes located adjacent to the coast. the~~ Tolowa, Yurok, Wiyot, Mattole, Sinkyone, Yuki and Pomo ~~tribes~~ have ancestral territories ~~bounding the coastline directly adjacent to the coast~~. Other ~~northern California tribal~~ Tribal groups such as ~~Hoopa-Hupa and~~ Karuk, Wintu and many others (INSERT TRIBAL MAP NORTHERN CALIFORNIA-FROM Heizer 1978, or from NAHC website at [www.nahc.ca.gov](http://www.nahc.ca.gov)) have coastal interests but ~~their ancestral and Tribal territories are more inland not a direct land link to the coast~~ (NAHC 2009; Wiki, pers. comm. 2009; Heizer 1978).

At the time of the first European contacts in the north coast study region, Indigenous Peoples lived in numerous and well-populated coastal and inland villages. ~~They were intimately familiar with the seasonal cycles important for successful fishing, hunting and gathering of a wide variety of marine and terrestrial resources to sustain their communities. These areas provided abundant food and resources.~~ The ocean, beaches, estuaries and tidelands with their ~~and its diverse animal and plant many marine~~ resources have always been ~~an~~ a fundamental -part important-part-of the ~~identity and Native American~~ way of life for Native Americans on the north coast. Despite historic events and policies that sought to ~~annihilate~~, remove, colonize, or assimilate ~~California Indians, Indigenous Peoples,~~ many ~~Indigenous Peoples of the Tribes of~~ the north coast study region continue to reside in or near their ~~ancestral homelands, in numbers far greater and with knowledge and practice of their unique cultural traditions relatively more intact than any other region of coastal California.~~, remain culturally intact, and continue many aspects of the traditional lifeways (Rocha, pers. Comm. 2009). This has led to culturally, politically, and socially strong ~~Tribal~~ Tribal organizations that are ~~intimately very much~~ connected to place, although they vary in capacity, membership, land status, government, and structure. Unlike other parts of the California coastline, ~~several many north coast tribes have direct jurisdiction over their Tribal lands bounding own land along the ocean (NAME THESE TRIBES – Smith River Rancheria, Yurok Tribe, Trinidad Tribe, Wiyot Tribe, others?).~~

### 5.2.1 Native American Resource Use [pages 68-69]

~~Contemporary, traditional~~ ~~Some~~ Native American people ~~assert have indicated that~~ they are an intrinsic part of the ecosystem, as expressed in their interactions with the land, the ocean, and the various resources and animals (Eglash 2002). Traditional ecological knowledge has enabled Indigenous Peoples to live off the land for thousands of years, with minimal environmental consequences (Anderson 2006; Heizer and Elsasser 1980; Hildebrandt 2007; Moratto 1984; Heizer 1978). There ~~continue to be are~~ many ~~traditional~~ cultural uses of the coast and ocean waters by Indigenous Peoples ~~of northern in~~ California that ~~are can be~~ consumptive and non-consumptive. Consumptive uses may be ~~traditional~~ subsistence, ~~medicinally, spiritually~~ or ceremonially based, for example. Non-consumptive examples may include use of the viewshed (1) from a particular place for spiritual purposes, and resources ~~such as abalone shells, olivella shells and sea lion tusks used for needed in~~ creating regalia ~~used for ceremony-ials~~. Thus, these cultural uses are not recreational or commercial, although ~~many tribes also have~~ commercial fishing ~~interests as well does occur~~. Additionally, specific areas are identified for certain resources and/or uses by a given family, Tribe or group of Tribes, ~~and some~~. ~~Many strongly believe and assert they maintain that they~~ have aboriginal rights in these areas ~~that predate American settlement and are not subject to United States law~~.

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Under current State and Federal laws, placing restrictions on on-going traditional Native American uses of coastal and marine resource sites and districts must be considered in environmental impact analyses to determine if such actions will adversely effect those qualities that make such sites or districts eligible for or listing on the National Register of Historic Places and/or California Register of Historical Resources, often referred to as "Traditional Cultural Properties (TCPs)" (Roeha, pers. comm. 2009) (CEQA, NEPA, Section 106 of the National Historic Preservation Act). Such TCP sites and districts qualify for protection as historic properties per National and State register criteria based on evidence their significance is rooted in the history of the culturally affiliated group and they continue to be important in maintaining the community's unique, on-going cultural identity and traditions (National Park Service 1998). An example of significant cumulative, indirect impacts from a designated Marine Protected Area might be changes in the integrity of the natural setting, feeling and association characteristics important to ceremonial TCP sites, where isolation and quiet are key elements, related to redirecting public and commercial users to non-restricted coastal areas where such ceremonial places exist.

Indigenous Peoples continue to depend upon the rich diversity of marine and coastal ~~plant~~ resources as part of their daily lives. Important marine resources include salmon, clams and abalone (as both food sources and for the shells, ~~which are used in ceremonial regalia~~), mussels, seaweed, eels, crab, rockfish, steelhead, surf fish, candle fish (or eulachon) and sea salt (Young, pers. comm. 2009; Hostler, pers. comm. 2009; Dowd and Dowd, pers. comm. 2009). Subsistence fishing for crab, salmon, steelhead, surf fish (smelt), eels, mussels and clams occurs regularly from ~~the rocky and sandy ocean strands, rivers and tidally influenced bays, estuaries, and/or lagoons~~. Marine shells such as abalone and olivella are especially important for repairing and making traditional regalia used in on-going, yearly, intertribal ceremonials, such as the Brush Dance, White Deerskin Dance and Jumping Dance (Kroeber and Gifford 1948; Sundberg 2005). Geological beaches. Non-plant or animal materials resources with cultural significance found in the coastal zone include steatite and chert, which are mined or collected and used to make items such as polished stone bowls and pipes, and flaked-stone knives and arrow points, respectively (Verwayen 2007). Other geological features along the coast and in near and off shore settings figure prominently in the origin stories and religious and ceremonial traditions of north coast tribes; for example, most sea stacks, off-shore rocks and rocky points or prominences have ancient Indian language placenames and creation stories associated with them, as well as certain protocols for respecting these "beings" (Waterman 1920; Loud 1917).

Historic and archaeological values ~~are~~ is another important consideration. For example, certain areas along the coast are also highly valued for their historic, archaeological and traditional cultural significance, such as submerged buried ~~al~~ grounds and ancient village sites (Erlandson et al. 2007; Hildebrandt 2007; Moratto 1984). ~~These past and present uses are relevant in marine planning, as decisions may affect these traditions.~~

Locations of certain Native American cultural places, as well as sensitive information about their nature and uses, are considered confidential and protected from public (FOIA) disclosure under

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various State and Federal laws. Protecting confidential information is an issue of utmost importance to Indigenous Peoples and is recognized in Government-to-Government consultation protocols and guidelines.

#### 7.1.4 Native American Jurisdiction and Treaty Rights [pages 121-122]

General comment this subsection: Treaty Rights not adequately addressed.

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There are many different and distinct ~~Tribal~~Tribal groups within the three counties of the north coast study region (NAHC 2009; BIA 2009). Within each ~~Tribal~~Tribal group, there are a variety of ways in which the larger group is further segmented, each sub-set being unique, including, for example, identification by band, village, family, ~~and/or~~house, and/or marriage alliances (both intra and intertribal). Groups ~~were and~~ are interconnected by complex social and ~~exchange trade~~ networks, as well as traditional transportation routes (with modern roads typically following aboriginal foot trails) that extend north, south and inland (cf. Gates 1995). Some ~~Tribal~~Tribal groups originally resided seasonally along the coast, while others had permanent villages there. Therefore, although a majority of coastal and marine resources are now used by those people residing predominantly along the coast, there is significant use and meaning of marine resources in the north coast study region that must also be recognized for peoplesIndigenous Peoples residing many miles inlandto the north, south, and inland and even beyond the boundaries of Mendocino, Humboldt and Del Norte counties~~that must also be recognized~~. It should be noted that some areas are simultaneously identified by neighboring Tribes and that certain areas may be more distinctly identified as attributed to certain band(s), village(s), family(ies), and/or individual(s).

“Federally-recognized Native American Tribes” are formally ~~recognized~~acknowledged by the Federal Government as separate and independent sovereign nations within the territorial boundaries of the United States. Federal government agencies consult with such Tribes on a government-to-government basis per various Federal laws and mandates (e.g., W.R. Clinton Presidential Executive Order 13084; National Historic Preservation Act of 1966, as amended through 2004)by the Federal Government. “In recognition of California Native American tribal sovereignty and the unique relationship between California local governments and California tribal governments” (§1(b) of California Senate Bill 18), State law enacted in 2004 requires local (city and county) governments to consult with California Native American tribes (both Federally-recognized and certain nonfederally-recognized tribes and organizations) to aid in the protection of traditional tribal cultural places through local land use planning (Senate Bill 18, “Traditional Tribal Cultural Places”; OPR 2005). Solid and detailed Tribal Consultation Guidelines developed by the State pursuant to Senate Bill 18 were developed with the participation of many interested California Indian Tribes, organizations and individuals by the Governor’s Office of Planning and Research (OPR 2005).

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Federally-recognized TTribes promulgate and administer their own laws and operate under their own Constitutions. Each federally-recognized Tribe is a distinct political entity. For each. Moreover, tribalTribal citizenship membership is determined by the governing ~~tribal~~Tribal law and as such, being classified as “Indian” due to ~~your~~acceptance to a roll of a federally-recognized Tribe is a political classification that is citizenship-based and means this

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~~classification is not racial, but rather citizenship based, thus making it a political classification.~~  
~~As a result of historical factors and per individual Tribal law governing eligibility for membership, Tribal composition governments may include citizens that identify culturally with a single aboriginal (pre-contact) tribal community (e.g., Wiyot or Yurok only), or have many members that recognize ancestry from multiple varying Tribal tribal groups communities (e.g., members of the Blue Lake Rancheria Tribe include persons of Wiyot, Yurok, Tolowa, and Cherokee descent, and the Rancheria is located within the ancestral lands of the Wiyot [Blue Lake Rancheria]). Federally-recognized Tribes in California have varying- various types of lands identified as Indian Country (2), including Reservations, Rancherias, dependent Indian communities (3), and allotments.~~

~~As a consequence of the complex history of Federal and State government relationships with California's Indigenous Peoples, presently there are many persons of California Indian ancestry that are not members of federally-recognized Tribes. As of 2008, the Office of Federal Recognition of the Bureau of Indian Affairs (OFR BIA) reports 74 individual groups in California that have filed petitions for formal Tribal federal recognition.~~

~~Most federally-recognized and non-recognized California Indian Tribes have areas they identify for subsistence, cultural, and ceremonial purposes, and to a lesser extent, for recreational and commercial uses of the coast and ocean waters within those lands they identify as ancestral, cultural, and/or Tribal connection.~~

Currently, there are 109 federally-recognized Native American Tribes in California, 20 of which lie within the three coastal counties of the north coast study region (Rocha, pers. comm. 2009).

~~In addition, there are several tribes petitioning for federal recognition.~~ Federally-recognized Tribes in the north coast study region include (BIA 2009; Rocha, pers. comm. 2009):

[list of Federally-recognized tribes not reproduced here – no changes recommended]

~~Nonfederally-recognized tribes and organizations in the three county area framing the north coast study region include, but may not be limited to (OFA BIA; David Singleton at NAHC, pers. comm. to Janet Eidsness; Janet Eidsness, pers. comm.):~~

#### ~~DEL NORTE COUNTY~~

- ~~Tolowa Nation~~
- ~~Melochundum Band of Tolowa Indians~~

#### ~~HUMBOLDT COUNTY~~

- ~~Tsnungwe Council~~
- ~~Tsurai Ancestral Society~~
- ~~Wailaki Community Near Garberville~~

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## MENDOCINO COUNTY

- Yokayo Tribe of Indians
- SheBelNa Band of Mendocino Coast Pomo Indians
- Noyo River Indian Community
- Sinkyone Intertribal Council

~~Each of these Tribes are distinct political entities and each have various areas they identify for subsistence, cultural, and ceremonial purposes, as well as to a lesser extent recreational and commercial uses of the coast and ocean waters within those lands they identify as ancestral, cultural, and/or Tribal connection. Each Tribe individually has a government to government relationship with the federal government. There are also federally obligated Trust Responsibilities that are multi-faceted.~~

The California Fish and Game Code is not applicable within the boundaries of ~~thea~~ Tribe's Reservation or Rancheria for its recognized members ~~o Native American tribes~~, although the sale of bird, mammal, fish, or amphibian is still prohibited (Fish and Game Code §12300). Outside ~~f~~Reservation or Rancheria propertyies, all Native Americans s ~~citizens~~ are subject to the Fish and Game Code.

### References for Chapter 7

Comment: the following citations from original draft text are not included and need to be added:

Verwayen 2007  
Erlandson et al. 2007  
Anderson 2006  
Heizer & Elsasser 1980  
Eglish 2002  
Dowd and Dowd (pers. comm. 2009)  
Wiki (pers. comm. 2009)  
Young (pers. comm. 2009)

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Comment [JE1]: There needs to be more succinct, relevant discussion here!

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Hostler (pers. comm. 2009)

Comment: other citations below are recommended per suggested text edits:

Hildebrandt, William R.

2007 Northwest California: Ancient Lifeways Among Forested Mountains, Flowing Rivers, and Rocky Ocean Shores (Chapter 7). In *California Prehistory, Colonization, Culture, and Complexity*, T.L. Jones and K.A. Klar, Editors, pp. 83-97. Altamira Press, New York.

Moratto, Michael J.

1984 *California Archaeology*. Academic Press, San Francisco.

Heizer, Robert F., volume editor

1978 *Handbook of the North American Indians, Volume 8, California*. Smithsonian Institution, Washington.

National Park Service

1998 National Register Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties*. U.S. Department of the Interior. National Park Service. National Register, History and Education.  
[<http://www.nps.gov/history/nr/publications/bulletins/nrb38/>]

Kroeber, A.L., and E.W. Gifford

1949 World Renewal, A Cult System of Native Northwest California. *Anthropological Records* 13. University of California Press, Berkeley.

Sundberg, Joy

2005 Trinidad, California, Patrick's Point State Park: the Yurok Village of Sumeg. In *American Indian Places: A Guide*, Frances H. Kennedy, editor and principal author. Houghton Mifflin Company (2005)

Loud, L.L.

1918 Ethnogeography and Archaeology of the Wiyot Territory. *American Archaeology and Ethnology* 14(3):221-436.

Waterman, T. T.

1920 Yurok Geography. *University of California Publications in American Archaeology and Ethnology* 16(5):177-314.

Census Records

<http://quickfacts.census.gov/qfd/states/>

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Blue Lake Rancheria  
<http://www.bluelakerancheria-nsn.gov/facts.html>

Office of Planning and Research (OPR)

2005 *Tribal Consultation Guidelines (Supplement to General Plan Guidelines)*. State of California Governor's Office of Planning and Research, Sacramento.

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~~David~~ Singleton, David

Pers. comm. to Janet Eidsness (THPO for Blue Lake Rancheria) on 1/7/10. Mr. Singleton is staff member of Native American Heritage Commission in Sacramento.

Office of Federal Acknowledgement (OFA), Bureau of Indian Affairs (BIA)  
<http://www.indianaffairs.gov/idc/groups/public/documents/text/idc-001215.pdf>

Gates, Thomas

1995 Along the Ridgelines: A History of the Yurok Trail Systems. Unpublished Ph.D. Dissertation, Department of Anthropology, University of Anthropology, University of North Carolina at Chapel Hill.

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Eidsness, Janet P.

Pers. comm. Eidsness is the Tribal Heritage Preservation Officer of Blue Lake Rancheria and has worked with North Coast Indians and Tribes as a cultural resources consultant for 30 years.

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**From:** Judith Vidaver  
**Sent:** Friday, January 15, 2010 1:08 PM  
**To:** MLPAComments  
**Subject:** North Coast Regional Profile Comments

This is an addendum to comments filed by hard copy by Ocean Protection Coalition of Mendocino.

We want to draw your attention to the maps regarding siting of wave energy plants off the Mendocino County Coast. The maps indicate that PG&E and Ocean Power Technology have preliminary permits for areas off Fort Bragg and Centerville respectively. Both those permits have been surrendered.

Judith Vidaver, Chair, Ocean Protection Coalition  
Fort Bragg, CA 95437

**From:** Larry Knowles

**Sent:** Friday, January 15, 2010 2:23 PM

**To:** MLPAComments

**Subject:** Draft North Coast Regional Profile Submission

To whom it may concern,

The following are two versions of the same document with submissions and corrections for the Draft Regional Profile of the North Coast Study Area one as a PDF the other a WORD doc.

**1-15-10**

**Submissions to the Draft Regional Profile of the North Coast Study Region**

Contact: Larry Knowles  
Nominee North Coast Regional Stakeholder  
Owner, Rising Tide Sea Vegetables  
707-964-5507  
[lknowles@mcn.org](mailto:lknowles@mcn.org)

To whom it may concern,

Please include the following in the Executive Summary page xi, at 1st bullet point starting with the words "Both harvest..." Please insert into that paragraph the following: "According to Barclays California Code of Regulations, Section 165 (b) (4) (A), "In beds north of Point Montara, *Nereocystis* (bull kelp) may only be taken by hand harvesting. No mechanical harvesters of any kind allowed." Note; *No other* mechanically harvestable seaweed occurs in large quantities along the northern California coast, therefore mechanical harvesting will not occur north of Point Montara which is just south of San Francisco.

Please include the following in Socioeconomic Setting page 81, third line from the top should read; *2000 pounds of Nereocystis...*

Please include the following in Chapter 5, page 79, 5.4 Kelp Harvesting and Aquaculture Leases first paragraph: "According to Barclays California Code of Regulations, Section 165 (b) (4) (A), "In beds north of Point Montara, *Nereocystis* (bull kelp) may only be taken by hand harvesting. No mechanical harvesters of any kind allowed." Note; *No other* mechanically harvestable seaweed occurs in large quantities along the northern California coast, therefore mechanical harvesting will not occur north of Point Montara which is just south of San Francisco.

To confirm accuracy of these statements please contact Pete Kalvass at the DFG Noyo Marine Resources Lab 707-964-9078.

**From:** Mark & Linda Cortright  
**Sent:** Friday, January 15, 2010 4:18 PM  
**To:** MLPAComments  
**Subject:** North Coast Draft Regional Profile Comments

Please see attached document

1/15/10

MLPA North Coast Draft Regional Profile – Comments

Respectfully submitted by Mark Cortright

My area of expertise is underwater diving/photography /spearfishing so I'm addressing that more than, say sport-fishing, but will comment on a few obvious omissions here but these areas overlap some. I will address some wrong info and missing info on the draft first.

**Page 23, section 3.1.8: Underwater Pinnacles**

Cape Mendocino has many of these and they all are dive spots, as they are in better underwater visibility zones, since they are offshore and do not see the influence of sand and sediments, as do most Humboldt and Del Norte beaches.

This also applies to St. George's reef, and especially to Reading Rock.

Reading Rock is the most off-shore dive area we have, and its pinnacles to the west and northwest are the best visibility in the area from the Cape to the Oregon border. Mendocino Co. has by far the best underwater visibility because most of its shore is rocky.

**Page 24 section 3.1.10 Offshore Rocks and Islands**

No mention of Reading Rock being one of the larger haulout areas for Pinnipeds.

Since the 1980's, it has really expanded to include Steller sea lions and about 2/3 more sea lions than in the 1980's (ref page 39 Pinnipeds). I have personally observed the increase in sea lions on this rock, since I dove there throughout the 1980's, 1990's and into the 2000's.

**Page 26-27 section 3.2.1 Depleted and Overfished Species**

One note here is the area just north of Punta Gorda Reserve and south of Cape Mendocino has an incredible amount of yelloweye at depth (below 120 feet).

This area is little fished due to weather and as your mapping crew can verify it's just hard to get to any time at all due to wind and seas. In this area yelloweye are huge and plentiful. This knowledge is from halibut fishing there.

**Page 82-83-Recreational Fisheries**

There is no mention of herring and sardines in Humboldt Bay. Both are taken by commercial and sport fishing for bait (this happens every year), and herring for roe to Japan. There are 8 herring commercial permit holders in Humboldt.

Our local Portuguese catch and eat sardines.

**Page 87 Consumptive shore diving**

No mention of offshore diving from boats in entire draft. This is a huge omission.

**Page 87 Man-made Structures**

Diving occurs on these 99% more than beach dives in Humboldt/Del Norte.

North Jetty and South Jetty at the Humboldt Bay entrance has supported diving since they were built.

**Page 90, 5.7 Non-consumptive Uses**

No mention of underwater photography, which, granted, is limited in our area (Humboldt/Del Norte) but is more widespread in the southern part of the North Coast

Study Region. This also spills over to the economic areas of photo sales and galleries in and out of the study region.

**Page 96 Table 5.7-7 Activities using private and rental boats, 2007**

This table does not accurately represent what is going on in this region. It is way too under-reported to have much validity. There have not been the economic resources put into this survey to get an accurate picture. An example of this is that the table says there were only 2 boats for diving in all three counties for the entire year; this is completely under-represented.

**Page 98 Table 5.7-11 Popular scuba diving sites**

Some of this is completely wrong and needs revision, since the data are based on general subject books, not actual north coast divers.

What is correct is that rocky areas are where divers in the entire study region dive; sandy beaches are not where anyone dives due to surf and poor visibility.

Let's correct the problem ones on the table:

Smith River/Tillas slough is not a dive spot

Pelican State Beach is not a dive spot

Centerville Beach County Park - not a dive spot

Samoa Dunes/North Jetty is a dive spot, but you need to add South Jetty

Mad River Beach is not a dive spot

Clam Beach is not a dive spot

Little River State Beach is not a dive spot

Moonstone County Beach is not a dive spot

Humboldt Lagoons - not a dive spot

Prairie Creek Redwoods - not a dive spot

Redwoods National Park - not a dive spot

The dive spots that see more traffic are Reading Rock, St. George's reef, and Cape Mendocino, which are not mentioned at all in the entire Draft.

The kayaking area on page 98-99 needs to include the entire Trinidad area as well as all the rocky areas near-shore from the Crescent City harbor to Point St. George, and Humboldt Bay, sloughs, and lagoons, as that's where we see lots of this going on.

**Appendix A-Metadata (Draft Map Atlas)**

The maps, tables and charts as far as shore diving in Humboldt/Del Norte is completely based from [www.shorediving.com](http://www.shorediving.com) (in Appendix A-Metadata), which has all the sites wrong for these two counties.

The web site does not cover Humboldt and Del Norte counties at all. See website [www.shorediving.com](http://www.shorediving.com).

The dive information needs to be based from real North Coast divers in the three counties for accurate data.

I hope this information is useful

Thank You

Mark Cortright

McKinleyville, CA



**From:** Mike Schaver  
**Sent:** Friday, January 15, 2010 2:47 PM  
**To:** MLPAComments  
**Subject:** North Coast Regional Profile comments

To whom it may concern,

When describing the Tribes from the North Coast, the Profile doesn't include the federally recognized Pomo Tribes of Lake County. The Tribes of Lake County are Pomo and follow all of the coastal collection traditions as their Mendocino County Pomo relatives. The Tribes of Lake County include the Big Valley Rancheria, Elem Indian Colony, Lower Lake Rancheria, Middletown Rancheria, Robinson Rancheria, and Upper Lake Rancheria.

Thank you for your assistance,

Mike Schaver  
Environmental Director  
Elem Indian Colony

From: Nick Angeloff  
Sent: Friday, January 15, 2010 11:18 PM  
To: MLPAComments  
Subject: bear river comments attached

Nick Angeloff  
THPO Bear River Band of Rohnerville Rancheria

## BEAR RIVER BAND of ROHNERVILLE RANCHERIA

27 BEAR RIVER DR. LOLETA, CA 95551 707.733.1900, fax 733.1972



CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE DRAFT REGIONAL PROFILE OF THE NORTH COAST STUDY REGION (ALDER CREEK TO THE CALIFORNIA-OREGON BORDER), December 2, 2009 Draft

The Bear River Band of Rohnerville Rancheria provides the following comments:

General: The draft is comprehensive and well written. While the document highly descriptive it omits several species that are currently and traditionally utilized by Tribal membership. These resources are highly significant to the Wiyot and southern Athabaskan people of Humboldt County as represented by Bear River. Multiple resources, floral, faunal and geological are not listed here and this document should not be used as a comprehensive list of subsistence species. This profile does speak to the philosophy of human inextricability with the ecosystem held by many Indigenous people, but does not address the necessity of continued access to the ecological whole towards cultural and ideological health and well being of Native American groups. Below are specific comments.

### 5.2 Native American Coastal Communities

Native American tribal people, also referred to as Indigenous Peoples, have inhabited the north coast of California for over 12,000 years, and rely on the coast and ocean for a variety of important uses, such as spiritual, ceremonial, cultural, training, travel, subsistence, harvesting, and gathering (Rocha, pers. comm. 2009; Erlandson et al. 2007; Anderson 2006). As an intrinsic part of the ecosystem, Indigenous Peoples strive to steward the environment in a sustainable manner based on their traditional ecological and cultural knowledge (Anderson 2006; Eglash 2002; Heizer and Elsasser 1980). As such, access to the ecological system as a whole, including coastal marine resources is critical to the social, cultural and ideological health of Native American tribes and individuals. In the north coast study region, there are a number of tribes located adjacent to the coast. Tolowa, Yurok, Wiyot, Bear River, Mattole, Sinkyone, Yuki and Pomo have ancestral territories directly adjacent to the coast. Other tribal groups such as Hoopa and Karuk have coastal interests but not a direct land link to the coast (NAHC 2009; Wiki, pers. comm. 2009). At the time of the first European contacts in the north coast study region, Indigenous Peoples lived in numerous and well-populated coastal and inland villages. These areas provided abundant food and resources; this state of the ecological system is the ultimate goal of this conservation and management effort. The ocean and its many marine resources have always been an important part the Native American way of life on the north coast. Despite historic events and policies that sought to remove, colonize, or assimilate Indigenous Peoples, many of the Tribes of the north coast study region continue to reside in or near their homelands, remain culturally intact, and continue many aspects of the traditional lifeways (Rocha, pers. comm. 2009). This has led to culturally, politically and socially strong Tribal organizations that are very much connected to place. Although they vary in capacity, membership, land status, government, and structure, local tribes in the North Coast Study Region can make substantial contributions to our understanding, management and health of the marine ecosystem under study through their subsistence practices. Unlike other parts of the California coastline, many tribes own land along the ocean.

## BEAR RIVER BAND of ROHNERVILLE RANCHERIA

27 BEAR RIVER DR. LOLETA, CA 95551 707.733.1900, fax 733.1972



### 5.2.1 Native American Resource Use

Some Native American people have indicated that they are an intrinsic part of the ecosystem, as expressed in their interactions with the land, the ocean, and the various resources and animals (Egash 2002). Traditional ecological knowledge has enabled Indigenous Peoples to live off the land for thousands of years, with minimal beneficial environmental consequences as evidenced in the environmental conditions found by EuroAmericans during the contact period of the early to middle 19<sup>th</sup> century (Anderson 2006; Heizer and Elsasser 1980). There are many cultural uses of the coast and ocean waters by Indigenous Peoples in California that can be consumptive and non-consumptive. Consumptive uses may be subsistence or ceremonially based, for example. Non-consumptive examples may include use of the viewshed from a particular place for spiritual purposes, and resources needed in creating regalia used for ceremony. Thus, these cultural uses are not recreational or commercial, although commercial fishing does occur. Additionally, specific areas are identified for certain resources and/or uses by a given family, Tribe or group of Tribes, and some these groups, families, tribes and Tribe maintain that they have aboriginal rights in these areas. Therefore, some Native American people assert that restrictions for these uses cannot be designated in those cultural use areas, often referred to as Traditional Cultural Properties (Rocha, pers. comm. 2009). Indigenous Peoples depend upon the rich diversity of marine and coastal plant resources as part of their daily lives. Important marine resources include salmon, clams and abalone (as both food sources and for the shells, which are used in ceremonial regalia), mussels, seaweed, eels, crab, rockfish, steelhead, surf fish, candle fish (or eulachon) and sea salt (Young, pers. comm. 2009; Hostler, pers. comm. 2009; Dowd and Dowd, pers. comm. 2009). Subsistence fishing for crab, salmon, surf fish (smelt), mussels and clams, among other coastal resources, occurs regularly from the rocky beaches and in other coastal areas. Non-plant or animal materials with cultural significance found in the coastal zone include, but is not limited to, steatite and chert, which are used to make items such as bowls and arrow points, respectively (Verwayen 2007). Historic value is another important consideration. For example, certain areas along the coast are also highly valued for their historic significance, such as submerged buried grounds (Erlandson et al. 2007). These past and present uses are relevant in marine planning, as decisions may will affect these traditions and has the potential to create substantial and inequitable social injustice through the imprisonment or arrest of Native individuals for continuing traditional cultural activities including subsistence hunting and gathering.

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### 7.1.4 Native American Jurisdiction and Treaty Rights

There are many different and distinct Tribal groups within the three counties of the north coast study region (NAHC 2009; BIA 2009). Within each Tribal group, there are a variety of ways in which the larger group is further segmented, each sub-set being unique, including, for example, identification by band, village, family, and/or house. Groups are interconnected by complex social and trade networks, as well as trails that extend north, south and inland. Some Tribal groups originally resided seasonally along the coast, while others had permanent villages there. Therefore, although a majority of coastal and marine resources are now used by those people residing predominately along the coast, there is significant use

**BEAR RIVER BAND of ROHNERVILLE RANCHERIA**

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and meaning of marine resources for peoples many miles to the north, south, and inland that must also be recognized. It should be noted that some areas are simultaneously identified by neighboring Tribes and that certain areas may be more distinctly identified as attributed to certain band(s), village(s), family(ies), and/or individual(s). Federally-recognized Native American Tribes are recognized as separate and independent sovereign nations within the territorial boundaries of the United States by the Federal Government.

Tribes promulgate and administer their own laws and operate under their own Constitutions.

Moreover, tribal membership is determined by the governing tribal law and as such, being classified as "Indian" due to your acceptance to a roll of a federally-recognized Tribe means this classification is not racial, but rather citizenship-based, thus making it a political classification. Tribal governments may include a single or many members from varying Tribal groups. Tribes in California have varying types of lands identified as Indian Country, including Reservation, Rancheria, dependent Indian communities, and allotments. Currently, there are 109 federally-recognized Native American Tribes in California, 20 of which lie within the three coastal counties of the north coast study region (Rocha, pers. comm. 2009). In addition, there are several tribes petitioning for federal recognition. Federally recognized Tribes in the north coast study region include (BIA 2009, Rocha, pers. comm. 2009):

**Del Norte County**

Tolowa Tribe of the Smith River Rancheria

Elk Valley Rancheria

Yurok Tribe (majority of Reservation lands span Humboldt County)

Resighini Rancheria

**Humboldt County**

Big Lagoon Rancheria

Blue Lake Rancheria

Cher-Ae Heights Indian Community of the Trinidad Rancheria

Bear River Band of the Rohnerville Rancheria

Wiyot Tribe

Hoopa Valley Tribe

**Mendocino County**

Round Valley Indian Tribes of the Round Valley Reservation

Cahto Indian Tribe of the Laytonville Rancheria, California

Sherwood Valley Rancheria of Pomo Indians of California

Coyote Valley Band of Pomo Indians of California

Pinoleville Rancheria of Pomo Indians of California

Redwood Valley Rancheria of Pomo Indians of California

Manchester Band of Pomo Indians of the Manchester-Point Arena Rancheria

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Hopland Band of Pomo Indians of the Hopland Rancheria  
Guidiville Rancheria  
Potter Valley Tribe

Each of these Tribes are distinct political entities and each have various areas they identify for subsistence, cultural, and ceremonial purposes, as well as to a lesser extent recreational and commercial uses of the coast and ocean waters within those lands they identify an ancestral, cultural, and/or Tribal connection. Each Tribe individually has a government-to-government relationship with the federal government. There are also federally-obligated Trust Responsibilities that are multi-faceted.

The California Fish and Game Code is not applicable within the boundaries of the reservation or rancheria for recognized members of Native American tribes, although the sale of bird, mammal, fish, or amphibia is still prohibited (Fish and Game Code §12300). Outside reservation or rancheria property, Native American citizens are subject to the Fish and Game Code.

**From:** Sebastian Elrite  
**Sent:** Friday, January 15, 2010 1:28 PM  
**To:** MLPAComments  
**Subject:** Comments for northcoast draft regional profile

The comments that I am providing are mostly general in nature and would require further investigation to quantify.

On page 13 section on hardened man made structures should include some description of species found on man made structures and a mention of intertidal reef habitat created by aquaculture practices.

on page 15 section on estuaries no mention of Crescent City harbor and the Elk River inlet and the sport clamming that occurs their.

on page 17 section on Mad River Estuary no mention of occasional dike breach letting Mad River flow into Humboldt Bay.

on page 17 section on Humboldt Bay no mention of Leopard Sharks being in high abundance.

on page 20 section 3.1.4 no mention of small amounts of Eelgrass in Crescent City Harbor.

on page 80 it might be beneficial to no level on non human consumption kelp harvest historically even though no activity is current..

on page 82 no mention of current lease for aquaculture in Crescent City Harbor

on pages 107 and 108 relating to research contributions, and sponsorship no mention of the Humboldt Bay Symposium, also no mention of the ongoing sampling of water quality by the shellfish farmers coordinated with the state department of health pre-harvest sanitation unit. No mention of the Oyster festival and the educational booth that is usually sponsored by shellfish farmers and the Humboldt Bay Harbor District.

Thank you for giving me a chance to comment on the draft regional profile for the north coast.

Sebastian Elrite  
Aqua-Rodeo Farms

# HUMBOLDT BAY OYSTER COMPANY

P.O. Box 2237 MCKINLEYVILLE CA 95519 [HBOC@SUDDENLINK.NET](mailto:HBOC@SUDDENLINK.NET)

## California Marine Life Protection Act Initiative

c/o California Natural Resources Agency

1416 Ninth Street, Suite 1311

Sacramento, CA 95814

(916) 653-8102

6 Pages Total



# HUMBOLDT BAY OYSTER COMPANY

P.O. BOX 2237 MCKINLEYVILLE CA 95519 HBOC@SUDDENLINK.NET

February 15, 2010

California Marine Life Protection Act Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

Dear MLPA Initiative Team,

Thank you for the opportunity to comment on the Draft Regional Profile of the North Coast Study Region (Draft Profile). This important document should reflect the most accurate information available. The following are my comments on the Draft Profile.

Executive Summary

Socioeconomic Setting

Pg x

Should read as follows:

Commercial and recreational fisheries, kelp and aquaculture leases, **shellfish mariculture** as well as tourism and non-consumptive **marine resource uses** all contribute to the coastal economies of Del Norte, Humboldt and Mendocino counties.

Executive Summary

Socio economic Setting

Pg xi Par 1

"Aquaculture occurs in the study region within Humboldt Bay."

Should read as follows:

Shellfish mariculture activities occur in northern Humboldt Bay and are economically important to this rural study region providing employment, lease fees and tax revenues. The state legislature deemed Humboldt Bay the Oyster Capital of California.

## Chapter 2

### Pg4 Par.2

"The largest commercial fishery in the bay is growing and harvesting oysters (Barnhart et al.1992)."

Comment: Oyster mariculture should not be considered a true commercial fishery. Oyster farming is not a capture fishery and is correctly not included in Table B-3 (Commercial fisheries – Humboldt County). It is a distinct activity from fishing. Farmed oysters are planted, nurtured and harvested over a period of years. Mariculture operators harvest only what they have planted. Mariculture lease fees are paid to the Humboldt Bay Harbor, Recreation and Conservation District, the City of Arcata, and/or the City of Eureka for the opportunity to use the tidelands they oversee in the public trust.

A table could be added to the Appendix that reflects the economic value of the shellfish mariculture industry to the study region.

### Pg 5 Par.2

"The marine resources of the region support commercial and recreational fisheries, including oysters, flatfish, rockfish, albacore, crab, and salmon."

Comment: Oysters should be removed from the above sentence. Oysters are not commercially "fished" and are very rarely recreationally "fished". Oysters are commercially important to the study region as a farmed product and play an important role in filtration of estuarine water quality.

## Ecological Setting

### Pg 17 Par 3

"The largest commercial fishery in the bay is growing and harvesting oysters (Barnhart et al. 1992)."

Comment: As stated, oyster mariculture is not a commercial fishery. It is a commercial farming activity. This should be made clear in the Draft Profile.

## Chapter 3

### Pg 38 Par 4 (Birds)

"As Brant rely on eelgrass, the health and distribution of the population is affected by the destruction of eelgrass habitat by human activity, including dredging, oyster mariculture, pollution and coastal development."

Comment: Oyster mariculture should be removed from the above statement. Licensed and permitted oyster mariculture activities are not allowed in areas of eelgrass. Current oyster mariculture methods do not destroy eelgrass habitat as stated. Significant changes to oyster farming methods have occurred during the last decade and the Draft Profile should be updated to reflect these changes.

Pg 38 Par 4 (Birds)

"Brant may also be displaced from healthy eelgrass habitats by human recreation activities, including boating, hunting and shellfish harvesting."

Comment: It would be clearer if the sentence read as follows:

"Brant may also be displaced from healthy eelgrass habitats by human recreation activities, including boating, hunting and recreational shellfish harvesting."

#### Section 5.4.3 Aquaculture Leases

Pg 82 Par 2

Comment: Effort should be made to distinguish the North Coast Study region from others in the state because the region is quite distinct as are the mariculture activities practiced. Comparisons to other areas of the state should be removed. Please consider the following as a replacement to this section of the Draft Profile:

**Six operators currently hold leases for mariculture activities in the north coast study region. Activities are focused in Humboldt Bay and typically utilize a small portion of the entire lease for farming. Leases in the north coast study region are granted to the operators by the Humboldt Bay Harbor, Recreation and Conservation District, the City of Arcata, and/or the city of Eureka. These tidelands are held in the public trust by these lessors. Coast Seafoods Company leases over 1000 acres but farms on less than 300. Other companies hold leases ranging from 10 to 350 acres.**

**Mariculturists in the north coast study region primarily grow bivalves (oysters, clams, and mussels), and some growers also harvest seaweed. Cultivation techniques are all off-bottom and include longlines, and rack-and-bag methods.**

## Section 6.2 Public Education and Outreach

Pg 110

"Some local, state and federal agencies have developed education and outreach programs to increase public awareness about coast and ocean issues:"

Add:

The Humboldt Bay Harbor, Recreation and Conservation District operates their Adopt-the-Bay Program providing educational outreach for local youth and community groups on issues related to Humboldt Bay. Classroom outreach and volunteer opportunities are a focus of the program to raise awareness of the local importance of the bay, its systems and how people interact with it. ([www.humboldtby.org/conservation/adoptthebay/](http://www.humboldtby.org/conservation/adoptthebay/))

## Section 7.1.3 Local Government Programs

Pg 121

Add:

The Humboldt Bay Harbor, Recreation and Conservation District is a special district created by the California State Legislature in 1970. The Harbor District is a county-wide agency with permit jurisdiction over all tide, submerged and other lands granted to the District including all of Humboldt Bay. Many research programs are supported or underwritten by the Harbor District including water quality monitoring, eelgrass studies, salmonid studies, ballast water exchange and exotic species. ([www.humboldtby.org/harbordistrict/overview/](http://www.humboldtby.org/harbordistrict/overview/))

## Section 9 Conclusion

Pg 129 Par 2

Should read:

- Important research and educational institutions, especially Humboldt State University in Arcata

## Appendix B: Profile of Commercial Fisheries

### Table B-3: Summary of Humboldt County Fisheries, 1999-2008

#### Comment:

Only commercial capture fisheries are reflected in the table. Please include data that reflects the economic contribution of bivalve shellfish mariculture (shellfish farming) to the North Coast Study Area. Shellfish farming is distinct from wild caught capture fisheries in state and federal management requirements, monitoring and associated costs.

#### North Coast Regional Profile Atlas

#### Habitat and Species Atlas

#### #10 Humboldt Bay-North

A seabird colony is indicated on Sand Island in northern Humboldt Bay (Arcata Bay).

However, there is no additional information provided in the Atlas or the Draft Profile. Please provide the scientific data that substantiates an existing seabird colony at that location.

Thank you for consideration of my comments. I look forward to future opportunities to give input to the Marine Life Protection Act Initiative process for the North Coast Study Region.

Respectfully,



Todd Van Herpe  
P.O. Box 2237  
McKinleyville, CA 95519

From: Tomas DiFiore  
Sent: Friday, January 15, 2010 5:00 PM  
To: MLPAComments  
Subject: Edible Kelp Comments NC Draft Region Profile

These are "Edible Bull Kelp Comments"

Thank You  
Tomas DiFiore

Draft Regional Profile of the North Coast Study Region  
**Edible Bull Kelp (*Nereocystis*) Comments**

**The California Marine Life Protection Act (MLPA) Initiative** has produced the Draft Regional Profile of the North Coast Study Region (Alder Creek near Point Arena in Mendocino County to the California-Oregon Border), ... as part of a joint fact-finding effort, communities and members of the public are invited to review the draft regional profile and provide suggestions for how to improve the document.

**Comments Specific to the 1st printed edition, December 2, 2009.**

To: California Marine Life Protection Act Initiative  
c/o California Natural Resources Agency  
1416 Ninth Street, Suite 1311 Sacramento, CA 95814  
<http://www.dfg.ca.gov/mlpa>  
[MLPAComments@resources.ca.gov](mailto:MLPAComments@resources.ca.gov)

From: Tomas DiFiore  
POB 612 Little River  
CA 95456-0612  
Member - Albion Harbor Regional Alliance

All comments follow prescribed format of:

“Comments are most helpful if they are provided as a bulleted list, with page numbers and paragraphs identifying specific portions of the document. Additionally, suggestions are welcome for new sources of information that may be referenced in the revised version of the document. Comments will be incorporated to the extent possible and a revised version of the regional profile will be produced as an additional resource for developing marine protected area proposals.”

Comments begin with

- 1) page numbers and paragraphs,
- 2) paragraph or charts are quoted or referenced,
- 3) concerns, questions and comments are led by three asterisks (\*\*\*) and may be interspersed between sourced data for connectivity of concern (“suggestions are welcome for new sources of information”) and begin with (!!!).

While this may seem a long way around to a point, the NC Draft Regional Profile is scattered in it's organizational structure and distant relevant sections regarding the very same ecosystem components are portioned throughout the document. In this document, Live links will also be incorporated into these comments occasionally as all MPA, MLPA, and MLPai data and outreach is facilitated through the digital medium including the Proposals use of MarineMap and Google Earth. Links are active going to related audio, video, PDF, document, digital file types or media.

Draft Regional Profile of the North Coast Study Region  
**Edible Bull Kelp (*Nereocystis*) Comments**

The following is submitted to clarify misconceptions found in text in the North Coast Draft Regional:

**5.4.2 Edible Algae Harvest**

p98 of 185 (p81 of Draft by Chapter)

Members of the genera, *Porphyra*, *Laminaria*, *Monostroma*, *Postelsia*, and other aquatic plants are classified as edible seaweeds by the DFG, as long as the algae is utilized as human food. The holder of an edible seaweed harvester's license **may take up to 4,000 pounds of *Nereocystis*** annually for human consumption. Edible seaweed license holders are not restricted to the kelp leasing laws above, so they may harvest bull kelp wherever it is found, granted they follow the weigh restriction described above. Regulations require that harvesters weigh and report the amount they harvest, and pay a royalty of \$24.00 to the State of California for each ton of seaweed harvested. These plants may be harvested throughout the year and within all state waters. Currently there are few regulations pertaining to the harvest of these ecologically and **economically important species**. Nevertheless, the DFG encourages sustainable harvest techniques such as cutting only the blade portion of certain plants such as the laminarians (kombu) and *Postelsia palmaeformis* (sea palm), and rotating harvest to allow adequate time for re-growth of previously harvested areas.

*From:*

***Pete Kalvass and Mary Larson***

*California Department of Fish and Game*

*Revised May 2002*

The bull kelp *Nereocystis luetkeana* ranges from Alaska south to San Luis Obispo County, CA (Hawkes et al., 1978; Scagel et al., 1987). In central California south of Carmel, both giant and bull kelp occur together, forming very dense kelp beds. Like the giant kelp, bull kelp is associated with hard substrates for attachment and other environmental factors (McLean, 1962; Foreman, 1970). Bull kelp generally occurs at water depths of 13 to 72 feet (McLean, 1962; Nicholson, 1970; Vadas, 1972).

The productivity of bull kelp is also high. Gotshall et al. (1986) monitored bull kelp at Diablo Cove in San Luis Obispo County. Over a 12-year period, productivity of bull kelp averaged 9 kg/m<sup>2</sup> or 40.5 tons/acre. During the same period, productivity ranged from a high of 45 kg/m<sup>2</sup> (200 tons/acre) to a low of 1.09 kg/m<sup>2</sup> (4.8 tons/acre). The most influential factor for bull kelp survival is light availability (Vadas, 1972). Reduction of light caused by plankton blooms, storm turbulence, overcast or foggy conditions, or overshadowing by other algae can inhibit growth substantially (Vadas, 1972; Dayton et al., 1984; Miller and Estes, 1989). Nutrient levels and water temperature are also important to the survival of bull kelp (Dawson, 1966; Jackson, 1983).



## Draft Regional Profile of the North Coast Study Region

### Edible Bull Kelp (*Nereocystis*) Comments

Unlike the giant kelp, storms have varying effects on bull kelp. While spring storms cause mortality on young and juvenile plants, summer storms had little effect on this species (Foreman, 1970). Bull kelp, by nature, is more abundant in high disturbance areas with extremely large swells. Because of the resilience and strength of the stipe of this plant, it is able to survive under these extreme conditions. Koehl and Wainwright (1977) reported that bull kelp stipes can stretch approximately 38 percent. During winter storms, bull kelp canopies are removed by wave action.

Because this plant is an annual species, this result is consistent with its life history. By late fall, photosynthetic activity has decreased resulting in weakened plants and holdfasts. The increase in wave energy during the winter months, in combination with the shortened day length, results in the death of this species as part of its life cycle.

#### ***Kelp Harvesting***

Kelp has been harvested commercially along the coast of California since the early 1900s (Scofield, 1959). Beginning in 1911, any small companies began harvesting along the coast between Santa Barbara and San Diego. In the early years, kelp was harvested for the extraction of potash and acetone. These chemicals were used to manufacture explosives during World War I (Scofield, 1959; McPeak and Glantz, 1984; Neushul, 1987; Tarpley and Glantz, 1992). In the 1920s, P.R. Park, Inc. of San Diego began harvesting kelp for use as an additive to livestock and poultry food and Kelco of San Diego began harvesting and processing giant kelp for the extraction of algin (Tarpley and Glantz, 1992).

Mariculture companies also use giant kelp commercially as food for their abalone stock. Abalone aquaculture businesses range in size from large companies to small hobby operations. In 1999, the combined abalone aquaculture firms accounted for less than 1.7 percent of the annual kelp harvest (CDFG, 2000). However, their harvest is expected to increase in future years as the supply of wild abalone decreases worldwide. The Cultured Abalone of Santa Barbara leases bed 27 north of Santa Barbara, immediately off the Goleta coast. Since 1966, its kelp harvest has increased by 15 percent annually in response to a growing abalone market (CDFG, 2000). In 1999, the Cultured Abalone harvested 560 tons of kelp. Its kelp harvest is expected to increase by 15 percent annually (CDFG, 2000). Kelp harvest data for 2000 to 2005 from five kelp beds located in the project area are provided in Table 5.7.9.

#### ***Kelp Harvesting Vessels***

The vessels used for harvesting commercial kelp beds range in length from 140 to 180 feet. The majority of the length of the vessel comprises the bin for holding the cut kelp (CDFG, 2000). Kelp is cut by reciprocating blades mounted at the base of a conveyor system (drapers) located at the stern end of the ship. The draper system is lowered into the water to a depth of 3 feet,

Draft Regional Profile of the North Coast Study Region  
**Edible Bull Kelp (*Nereocystis*) Comments**

and the harvest ship moves stern-first through the kelp bed. As the kelp is cut, it is brought aboard on the conveyor system and deposited in the bin. The harvest vessels can carry as much as 600 tons of kelp which can be collected in a day (CDFG, 2000). The large harvest vessels have a draft of approximately 12 feet and work at water depths greater than 30 feet.

Kelp harvest vessels used by abalone aquaculturists are smaller than those used by the commercial harvesters. The smaller vessels are capable of working in shallower waters because of their shallow draft. They typically carry between 15 and 25 tons of kelp. Kelp is also harvested by hand from smaller boats to supply abalone farms. It is either cut at the surface using a knife attached to a pole, or cut beneath the water surface by a diver. The cut fronds are bundled together and pulled aboard the boat by hand.

#### ***5.7.1.4 Recreational Kelp Harvesting***

Very little information is available on the quantity of kelp harvested for recreational purposes. However, several Native American Indian tribes and Asian groups do utilize kelp as a food source.

The kelp that is collected can be drift kelp that has washed up onto the beach or fresh kelp that is harvested during low tides. In addition to kelp, local Asian groups harvest seaweeds such as *Porphyra* spp. and *Ulva* spp. in the project area during spring low tides. These algae are utilized as a food source. Other recreational uses of kelp include its use as an ingredient in a form of ceramic art called Sagger firing and by gardeners for use as compost (CDFG, 2000). **It has been estimated that less than 25 tons of kelp is collected annually by recreational users (CDFG, 2000).**

*from 5.7 Commercial and Recreational Fishing/Kelp Harvesting Final EIR 2008*

#### **Overview of Use and Harvest**

Bull kelp, *Nereocystis luetkeana*, has commercial and recreational value as a harvestable resource, intrinsic value as habitat and food for hundreds of species in the nearshore ecosystem, and aesthetic value for non-consumptive users such as scuba divers. Because of the multiple uses of bull kelp, management concerns are much more complex than for most species.

Until the late 1980s, there was little targeted harvest of bull kelp in California except as a small component of the localized edible seaweed industry. In central California, bull kelp and giant kelp, *Macrocystis pyrifera*, often occupy the same beds. It is likely that bull kelp is incidentally harvested in these beds, although no separate records are kept of bull kelp harvest. Department of Fish and Game (DFG) records indicate that between 1993 and 1999 about 19

Draft Regional Profile of the North Coast Study Region  
**Edible Bull Kelp (*Nereocystis*) Comments**

tons of kelp, probably a mixture of bull kelp and giant kelp, were harvested from bed 302 in the Bodega Bay/Tomales Bay area (Marin County) and used by local abalone culturists. The bull kelp's thick, central stalk (called the stipe) is pickled and marketed as a specialty food product, and the dried parts are used for arts and crafts. In southern Oregon, bull kelp was harvested from Orford Reef in the mid-1990s for use in liquid fertilizer (the Oregon Division of State Lands no longer permits this harvest).

California's kelp bed management strategy has been largely passive, with effort spent on giant kelp restoration and intermittent aerial surveys of the giant kelp canopy. The Fish and Game Code (§6654) gives the Commission authority to close a kelp bed to harvest for up to one year if it is determined that the bed is being damaged. However, the information necessary for sustained-yield management—regular and formal stock assessments of the State's kelp resources—has been largely unavailable.

In 1996 the Fish and Game Commission (Commission) developed a “300 series numbering system for all the kelp beds north of San Francisco and established a kelp bed leasing program similar to the program for giant kelp in central and southern California. Before 1996 no such program existed, and any northern kelp bed could be harvested for commercial purposes.

**In anticipation** of increasing demand for large-scale harvest of the northern California bull kelp resource, the Commission acted in a precautionary manner in 1996 by closing beds 303 through 307 to future commercial harvest. **The Commission also required limiting the remaining beds in the 300 series to a maximum harvest of 15% of the biomass** as determined by a DFG-approved annual survey conducted by the lessee.

In 2001, the Commission provided further protection for the bull kelp resource by adopting a new suite of regulations that:

- Closed beds 301, 302, 310, and 311
- Restricted the harvest from April 1 through July 31 within the boundary of the Monterey Bay National Marine Sanctuary
- Required a harvester to have a Commission-approved harvest plan prior to taking kelp with a mechanical harvester in open beds north of Santa Rosa Creek (San Luis Obispo County)

The Commission can also respond more quickly to potential resource concerns by designating open beds, or portions thereof, as harvest control areas where harvest is limited for a specified period of time. **These regulations have created a *de facto* bull kelp reserve** along much of the northern California coastline, protecting essential kelp bed habitat for resident species such as heavily-exploited sea urchins and abalones.

Draft Regional Profile of the North Coast Study Region  
**Edible Bull Kelp (*Nereocystis*) Comments**

**As of 2002, only three of the State's 13 beds that mostly contain bull kelp were open to harvest.** Of these three, only one is currently leased, with one firm harvesting significant quantities of bull kelp. Since leasing the bed, the firm's peak harvest has been 149 tons, with only 11 and 44 tons landed in 2000 and 2001, respectively. This low harvest rate is due to a reduced demand for kelp and is not indicative of the resource available in the area.

### **Status of Biological Knowledge**

Bull kelp is primarily found adjacent to exposed shorelines along the Pacific coast of North America, ranging from Unalaska Island, Alaska to Point Conception, California (Santa Barbara County). Along the central California coast, giant kelp and bull kelp occur together, forming extensive kelp forests. However, from the Monterey Bay area northward to Alaska, bull kelp becomes the dominant canopy kelp species in coastal waters. Within the nearshore environment, bull kelp, like giant kelp, is associated with hard substrates at depths of approximately 10 to 70 ft, where it provides habitat and food for hundreds of species, many of them commercially and recreationally valuable.

Distribution of marine algae is restricted by the availability of hard substrate and a number of other factors within the nearshore environment, including water movement, light, temperature, nutrients, pollution, competition, and predation. The complex feeding interactions among sea otters, larger kelp grazers and kelp have been documented by a number of researchers. Generally, sea otter predation on invertebrate kelp grazers such as abalone limits the population of these grazers in a kelp forest community, thereby increasing kelp productivity.

In northern California, where sea otters are absent, commercial and sport fishermen have significantly reduced populations of sea urchins and abalone, which are two major kelp grazers. Although kelp populations off California generally seem to have increased, the competition among marine plants for space and light makes it impossible to determine the specific impacts of grazer populations on bull kelp.

The appearance of bull kelp is quite different from that of giant kelp. The most notable difference is that bull kelp possess only one gas-filled flotation bladder (pneumatocyst) located on the end of the hollow stipe. In contrast, giant kelp have many such bladders running the entire length of the kelp. The bull kelp's pneumatocyst typically bears from 30 to 64 blades, which resemble long, flat leaves. This canopy of blades provides most of the photosynthetic and nutrient-absorbing surface for energy production. Blade lengths of more than 13 ft have been reported for mature kelp, but it is typical to find a range of blade sizes (from 2 to 11 ft).

Although both giant kelp and bull kelp are attached to the substrate by holdfasts

Draft Regional Profile of the North Coast Study Region  
**Edible Bull Kelp (*Nereocystis*) Comments**

(root-like growths) the size of the holdfast is much smaller in bull kelp. Bull kelp stipes can reach lengths of up to 130 ft. The bull kelp's stipe does not have the same tensile strength as giant kelp's, but it is more elastic under stress. The bull kelp stipe can stretch more than 38% of its length before breaking.

Reproduction in bull kelp undergoes a cyclic alternation of generations similar to that of other kelp and other algae in the order Laminariales. The large plant commonly referred to as bull kelp represents the spore-producing (or sporophytic) generation, while the gamete-producing (or gametophytic) generation is microscopic. Bull kelp reproductive structures (called sporangia) are located on the blades of sporophytic plants in aggregations called *sori*. Mature sori are located in patches near the tip of the blade, and immature sori are located near the base of the blade. Production of spores within the sori usually begins several weeks after the blades reach the surface. As the spores mature during the summer and fall, the sori are shed from the blades and the spores released. They germinate upon settlement, and over the course of several weeks develop into gametophytic plants. After about 11 weeks, sperm and eggs are released from "male" and "female" gametophytic plants, and fertilization takes place. The resulting young plants (termed zygotes) grow into tall, familiar, sporophytic bull kelp. Once the plant reaches the surface, stipe and blade elongation rates decrease while the weight, or biomass, of the kelp increases.

As an annual plant, bull kelp has evolved an optimal reproductive strategy that involves accelerated stipe growth to reach the ocean surface where it can initiate spore production and release. Kelp that begins growing in late March may develop sori prior to reaching the surface in May, and can release spores as early as June. Maximum bull kelp growth occurs under optimal light, nutrient and water clarity levels. Bull kelp stipes can grow up to 5 in. per day, while blades may grow up to about 3.5 in. per day just prior to reaching the surface. The holdfasts of mature bull kelp can grow an average of about 0.2 in. per day.

The biggest factor in the growth of bull kelp is the availability and quantity of light. Light levels below the surface canopy have been shown to decrease by almost 100%; below secondary canopy, light levels are well below the minimum level necessary for growth. Thus, in established kelp communities there can be insufficient light and hard substrate available for recruitment and growth of new bull kelp plants. Bull kelp is an opportunistic colonizer that takes advantage of substrate clearing caused by storms, sand scouring, and other disturbances. While bull kelp can rapidly colonize a newly-cleared location, its longevity as the dominant canopy-forming species depends on environmental conditions that favor it over major competitors.

Water temperature also plays an important role in the growth of bull kelp. Mean sea surface temperatures over the kelp's distributional range vary from a high of 59° F off southern California to a low of 39° F off the Aleutian Islands. The introduction of

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**Edible Bull Kelp (*Nereocystis*) Comments**

unusually warm water can have a negative effect on bull kelp. For example, the bull kelp population in Diablo Cove (San Luis Obispo County) has been adversely affected by the warm water discharge from the Diablo Canyon power plant, which began in 1985. Plants in contact with the discharge experienced deterioration of blade tissue, which resulted in early death. This observation helps to explain the decline of bull kelp that occurs during El Niño events.

### **Status of the Beds**

The kelp resources of the eastern Pacific coast, from the Gulf of Alaska to Cedros Island, Baja California, were first mapped in 1912. Subsequent surveys along the central coast of California between Point Montara (San Mateo County) and Point Conception (Santa Barbara County) have not differentiated between bull kelp and giant kelp. Since the first survey in 1912, little work has been done along the north coast of California, primarily due to the absence of the more valuable giant kelp in this region. A 1967 kelp survey from Point Montara to the U.S.-Mexico border did not differentiate between bull kelp and giant kelp, and did not extend far north into the preferred bull kelp habitat.

Current knowledge of the population levels of bull kelp off the north coast is based on 1989 and 1999 surveys of the California coast, and information provided by a kelp harvester in the Crescent City area (Del Norte County).

Despite the high spatial and temporal variability in bull kelp coverage, both the 1912 and the 1989 surveys estimated approximately 6.5 sq. mi. of canopy north of Point Montara. The 1999 survey, however, indicated a sharp drop in canopy coverage in most beds north of Point Montara, which may be attributed to several factors. The apparent decline may be due in part to the timing of the 1999 survey, which was conducted after a major storm had passed through the region, destroying portions of the kelp beds. Also, improved interpretation methods for aerial photographs probably resulted in more accurate estimates of kelp canopy coverage in 1999. Comparing the estimates from these latest surveys with previous surveys raises questions about the accuracy of previous canopy estimates, which may have been too great. An additional consideration is that kelp bed coverage and density naturally varies from year to year.

In central California, bull kelp is generally restricted to areas unsuitable for giant kelp such as the outer edges of giant kelp beds and within the surge zone. However, following winter storms with heavy wave disturbance, bull kelp can become more abundant as it replaces the giant kelp removed by the storms. The DFG has recently acquired new technology which will hopefully allow biologists to more accurately differentiate between bull kelp and giant kelp in aerial images.

Kelp abundance has changed in various locations over time. For example, during the period

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from 1975 to 1982, the amount of bull kelp at Diablo Cove declined from 200 tons per acre to 4.8 tons per acre. In the Crescent City area, peak abundances ranged from 24 to 28 tons per acre from 1994 to 1996. South of Fort Bragg (Mendocino County), bull kelp beds decreased sharply from 1989 to 1999, whereas beds north of Fort Bragg increased sharply. The Fort Bragg area kelp beds appeared to increase in size and density between 1985 and 1988 based on aerial photographic surveys of the area. Bull kelp beds were thought to have reached their maximum potential during this period. The increase coincided with the removal of over 32,500 tons of red sea urchins from areas off Mendocino and Sonoma Counties by commercial divers. In 1992, the same beds showed delayed and reduced kelp recruitment and growth. The causes of the poor recruitment in 1992 may have been associated with the El Niño event of that year. These examples illustrate the kind of fluctuations that occur in the recruitment of bull kelp along the north coast and the factors that may play a role in the variability of the resource.

### **Management Considerations**

The DFG conducted a review of the commercial and sport bull kelp “fisheries” in 2000 and 2001, and recommended a number of management changes for the commercial fishery. The Commission adopted a new suite of regulations in 2001 based on the DFG review and public comments; these regulations are described in the “Overview of Use and Harvest” section. Other management measures that should be considered to ensure a productive future for California’s bull kelp resource and the species dependent on it include:

- Minimizing local impacts by modifying the present 15% harvest limit on the lease-only 300-series beds to require distribution of the harvest throughout the bed
- Prohibiting harvest of bull kelp in beds where the bull kelp resource has been chronically diminished during the past several decades
- Encouraging the use of alternative feeds, such as those already developed for cultured species such as red abalone
- Conducting at least one annual statewide aerial survey, preferably during the late summer, to document abundance and distribution of kelp canopy
- Conducting research to examine the impacts of various harvest strategies on kelp abundance, distribution and long-term stability

***Pete Kalvass and Mary Larson***

*California Department of Fish and Game*

*Revised May 2002*

*by John O’Brien*

*California Department of Fish and Game*

### **Further Reading**

Amsler, CD and M Neushul. 1989. Diel periodicity of spore release from the kelp *Nereocystis luetkeana* (Mertens) Postels *et* Ruprecht. J. Exp. Mar. Bio. Ecol. 134:117–127.

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Calif. Dept. of Fish and Game. 2001.

Final Environmental Document – Giant and Bull Kelp Commercial and Sport Fishing Regulations - Section 30 and 165, Title 14, California Code of Regulations. March 2001.

Estes, JA and DO Duggins. 1995. Sea otters and kelp forests in Alaska: Generality and variation in a community ecological paradigm. *Ecological Monographs* 65(1):75-100.

Foreman, RE 1984. Studies on *Nereocystis* growth in British Columbia, Canada. *Hydrobiologia* 116/117:325–332.

Foster, MS and DR Schiel. 1985. The ecology of giant kelp forests in California: a community profile. Biological Report 85(7:2). USFWS. 152 pp.

Nicholson, NL 1970. Field studies of the giant kelp *Nereocystis*. *Journal of Phycology* 6:177-182. Vadas, RL 1972. Ecological implications of culture studies on *Nereocystis luetkeana*. *J. Phycol.* 8:196–203.

*Annual Status of the Fisheries Report 2*

Respectfully Submitted  
Tomas DiFiore



**From:** Jim Martin  
**Sent:** Sunday, January 17, 2010 3:07 PM  
**To:** MLPAComments  
**Cc:** Susan Ashcraft; Darci Connor  
**Subject:** Draft NC Regional Profile comments

Apologies for the late submission, but it's been a busy week!

Draft North Coast Regional Profile Comments

Submitted by Jim Martin, member of SCAN, RFA, MOCA, SRA and NCFA

Page *x*: Socioeconomic setting. The profile should acknowledge the historical social differences between the north coast and other regions: strong support for conservation in the fishing community; close working relationship between environmental and fishing associations to oppose offshore oil development; different management strategies developed by local abalone divers and seaweed harvesters.

There is not enough discussion of *social* characteristics of the region, and overemphasis on the economics of so-called "non-consumptive uses" – which do not really exist.

Tourism, surfing, beachcombing, tidepooling, whale watching trips & recreational boating all have impacts on marine resources and the environment, and these impacts need to be identified. Even scientific research has direct impacts: the research vessel *Fugro Pelagos* is associated with 50 metric tons of blue whale bycatch. More commonly, federal and state stock assessments, including trawl surveys, are completely uncapped as to bycatch of overfished species – one survey trawl tow killed 5 metric tons of canary rockfish.

There appears to be an effort by the authors to create a distinction between fishing and other human impacts to marine resources. So-called "Non-consumptive Uses" can have enormous impacts on marine resources and contribute no funds to the conservation and management of marine resources, while recreational fishing contributes more than \$50 million per year in licenses, permits and taxes in the state in direct support of conservation and management of ocean resources. The figures and tables should compare these contributions: recreational licenses and fees compared to funds generated directly by surfing, scuba diving, wildlife watching, etc.

p.8: habitat data. The document should mention that the data was collected by a vessel that struck and killed a blue whale, operating outside the terms and conditions of its permit.

p. 11: "shoreline habitats" – the region off Mendocino County is characterized by numerous coves, rocky reefs and headlands that provide much more habitat than can be measured by linear "as the crow flies" distances. These habitats contain much more area of intertidal shoreline than flat, linear beaches or cliffs.

p.27: Is there any evidence of regional bocaccio landings observed in state waters? Yelloweye rockfish & the RCA: the expected rebuilding date for this species should be included –

p.28: where have black abalone been observed in the region?

p.33: Abalone. Abalone landings vary from year to year. The assertion about "increased take" cannot be justified because of the narrow and very recent time frame considered for

landings in the region. Recreational abalone divers supported new measures that reduced the overall take of abalone compared to long-term historical landings. Data on effort, CPUE and length frequencies should be included with raw landing data. Abalone are vulnerable to localized depletion and MPAs will *accelerate local depletion*. More recent data is available on good recruitment since 2001. Past poor recruitment was address by an annual limit of 24 abalone, and a punch card-tag system to reduce overall harvest rates. Some of the differences between management approaches in northern California should be compared to other regions' approaches in the past.

p. 59: Hydrokinetic Projects. The California Energy Commission sponsored a paper analyzing the potential negative environmental impacts of wave energy projects. Some of the findings should be presented here.

<http://www.energy.ca.gov/2007publications/CEC-500-2007-083/CEC-500-2007-083.PDF>

<http://www.energy.ca.gov/2008publications/CEC-500-2008-083/CEC-500-2008-083.PDF>

p.67: Figure 5.1-3: add commercial ex-vessel values; "living resources" missing.

On p. 79, in the table for Humboldt County, the annual commercial landings exceed \$15 million in three of the last six years. Yet on Figure 5.1-2 on p. 66, income from "living resources" never exceeds \$5 million. In that same Figure, there is no indication of the specific activities associated with "tourism & recreation" – do these figures include recreational fishing, seafood dinners on the coast, or other "consumptive" or "non-consumptive" activities that might be negatively impacted by the new MPAs and the associated loss of public access to marine resources?

p. 94: Delete discussions about lighthouses – not part of the study region & unrelated to marine life.

p. 97-98: Scuba Diving (non-extractive) – this is not a popular activity in this region, due to low visibility for much of the year and because of cold water temperatures. This fact is documented in the table 5.7-7, p. 96, where 0.11 % of the total boat-based trips were for non-consumptive diving in the entire region, and no trips were observed in Mendocino and Del Norte counties.

p. 111: Include local grassroots outreach & education associations:

Ocean Protection Coalition  
North Coast Fishing Association  
County Fish & Game Advisory Commissions  
Sonoma County Abalone Network  
Mendocino Abalone Watch  
Noyo Harbor District

Abalone: We're including the abstract of peer-reviewed science paper (Karpov, et al, 2001) "Interactions between Conclusion: Abalone are *not* likely to benefit from MPAs in this region because empirical evidence shows a lower abundance of abalone in the Point Cabrillo MPA compared to a heavily-fished area, Van Damme State Park. The authors state that the commercial sea urchin fishery benefits abalone populations. Therefore, marine reserves in this region will likely damage the sustainable abalone fishery by creating new "urchin barrens." These areas are dominated by sea urchins, reducing forage abalone, reducing kelp as food for abalone and habitat for finfish.

## INTERACTIONS AMONG RED ABALONES AND SEA URCHINS IN FISHED AND RESERVE SITES OF NORTHERN CALIFORNIA: IMPLICATIONS OF COMPETITION TO MANAGEMENT

KONSTANTIN A. KARPOV,<sup>1,\*</sup> MIA J. TEGNER,<sup>1,†</sup> LAURA ROGERS-BENNETT,<sup>2</sup>  
PETER E. KALVASS,<sup>1</sup> AND IAN K. TANIGUCHI<sup>3</sup>

<sup>1</sup>California Department of Fish and Game, Fort Bragg, California 95437; <sup>2</sup>California Department of Fish and Game, Bodega Marine Laboratory, Bodega Bay, California 94923; <sup>3</sup>California Department of Fish and Game, Los Alamitos, California 90720

**ABSTRACT** Red abalones (*Haliotis rufescens*), red sea urchins (*Strongylocentrotus franciscanus*), and purple sea urchins (*S. purpuratus*) share similar food and habitat requirements in northern California. Red abalones and red sea urchins also support important fisheries. Here we explore spatial interactions and apparent competitive effects among these species at an area where fishing has large impacts on both taxa, and at unfished reserve sites in which invertebrate density and food availability differ. There was an inverse correlation between adult red abalone and red sea urchin abundance at the scale of our transects when density of either or both species was high. In the poorest habitat for macroalgae, red abalones seldom occurred on the same transects with red urchins. The results suggest that differences in density, depth, and food availability play an important role in the observed spatial patterns of red abalones and red sea urchins. Purple sea urchins were not correlated to either of the other two species' distributions. An intense fishery for red sea urchins appears to have had a positive effect on kelp availability, and abalone growth and abundance. Aerial photographs during the period of intense urchin fishing (from 1982 to 1989), showed a dramatic increase in the surface canopy. Similarly, during this period, size frequency distributions of fished red abalones show an increase in the number of individuals in larger size classes. Modal progression in abalone size frequency distributions suggests a faster growth rate during this period when compared with a growth study, at the same location, conducted during the pre-urchin fishery years. Ultimately, red sea urchin removal apparently led to an increase in red abalone abundance even at a site that was heavily fished by recreational abalone fishers. Meanwhile, at a nearby reserve site where kelp populations are lower, red abalones have declined in abundance as red sea urchins increased. Our results suggest the need for multi-species ecosystem-based approaches to management of these valuable resources.

**KEY WORDS:** reserves, *Haliotis rufescens*, *Strongylocentrotus franciscanus*, *Strongylocentrotus purpuratus*, competition, spatial exclusion, ecosystem-based management

### INTRODUCTION

Red abalones (*Haliotis rufescens*), red sea urchins (*Strongylocentrotus franciscanus*) and purple sea urchins (*S. purpuratus*) share similar food and habitat preferences in kelp forest communities along the California coast. In northern California, red abalones are found in rocky intertidal and shallow subtidal areas in high abundance at 7–8-m depths, but also occur down to 25 m in areas where drift algae accumulate in surge channels. Red and purple urchins are found from mid- to low- intertidal zones to depths in excess of 50 m. Both species prefer rocky substrates, particularly ledges, crevices and surge channels, and avoid sand and mud (Schroeter 1978, Kato & Schroeter 1985). In areas of high predation, red abalones show a preference for crevice habitat (Hines & Pearse 1982). Red abalones and red and purple urchins feed primarily on the same species of macroalgae (Leighton & Booloootian 1963), and have been described as potential competitors for food and space (Leighton 1968, Tegner & Levin 1982). Both urchins and abalones feed primarily on drift kelp, but sea urchins are well known for their destructive grazing on attached plants when drift becomes limiting. Schroeter (1978) presented evidence that red urchins out compete purple urchins for food and habitat, suggesting that the red urchin fishery could lead to an increase in populations of its smaller congener. Several authors have considered the potential of sea urchin populations being released from competition as abalones were fished down in southern California (North & Pearse 1970, Tegner 1980, Tegner & Levin

1982, Tegner & Dayton 2000). No one has examined the effects of red urchin removal in areas where red abalones are still abundant.

Red abalones and red sea urchins are both fished intensively in northern California. Red abalone take is restricted to recreational fishers who are prohibited from using SCUBA. Karpov et al. (1998) reported that this results in a "defacto" refuge for red abalone at depths greater than 8.4 m. Since 1985, Red urchins have been subjected to an intense commercial fishery at all depths (Kalvass & Hendrix 1997). Purple sea urchins are essentially unfished, comprising less than 1% of the total urchin landings.

The red abalone, the largest member of the genus, attains sizes of up to 312 mm in northern California (Department of Fish and Game -DFG- unpublished data). Legal minimum size for the recreational-only abalone fishery is 178-mm shell diameter. Red sea urchins, characterized by long spines in relation to test diameter (TD), attain sizes of 140 mm TD, and were first protected by a minimum size limit of 89-mm TD in 1991. Purple sea urchins have short spines relative to their TD, and maximum TD is about 85 mm. In northern California macroalgae are highly seasonal as a food source (Tegner et al. 1992). Wave energy is markedly higher in northern compared to southern California, and thus is likely to be a more important factor affecting the distribution of abalone and urchins (Deacon 1973).

Fishing effects, both direct and indirect, make field studies of competition difficult to conduct. Here we take advantage of three locations in northern California, one fished and two reserves closed to sport and commercial fishing, to examine biological and fishery interactions between red abalones, red sea urchins, and purple sea urchins. Differences in fishing regimes constitute a natural experiment, which offers an opportunity to examine the factors structuring this nearshore community, the potential produc-

\*Corresponding author. E-mail address: kkarпов@mcn.org

†Deceased